

The background of the entire page is a collage of overlapping, dark, curved shapes that resemble aircraft wings or aerodynamic components. The text is printed in large, bold, white, sans-serif capital letters, slanted to follow the curve of the central graphic element.

AEROSPACE

FACTS &

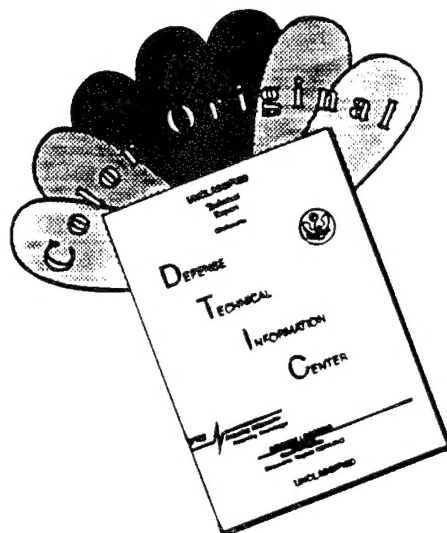
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For information about orders,
call (202) 371-8561

For information about content,
call (202) 371-8563

FAX (202) 371-8470

Compiled by:

Economic Data Service
Aerospace Research Center
Aerospace Industries Association
of America, Inc.

Executive Director, Research Center
Virginia C. Lopez

Manager, Economic Data Service
David H. Napier

Editorial Consultant
James J. Haggerty

Design
AAH Graphics, Inc.

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Foreword

The aerospace year 1994 was remarkably similar to its predecessor, a time of further-declining industry activity. As expected, defense sales continued to fall in the ninth year of the nation's defense restructuring effort. But sales of commercial aircraft plunged even more precipitously, by 33 percent, as the recession in airline transport purchases persisted. For the second year in a row, sales of space systems also declined.

Therefore, the industry experienced activity reductions in all three of its principal business components with the result that sales dropped some 10 percent and the backlog of orders fell 11 percent.

There was a bright spot amid the gloom: the industry's continuing impressive trade performance. Aerospace exports actually declined from the previous year's level, as did the trade balance, but those drops were viewed as consequences of a generally depressed global aerospace market. The industry's trade performance was, in fact, excellent, heartening evidence that U.S. aerospace manufacturers have been able to maintain their competitiveness despite years of enforced reductions in facilities and labor skills.

The industry downsizing occasioned by the need to adjust to the realities of sharply lower defense

and commercial activity continued to take its toll. By year-end 1994, the industry's overall sales level was more than 20 percent below its peak level of 1991 and the workforce had been reduced by some 462,000 employees—more than a third of the number at the employment peak only five years earlier.

The industry's transition is by no means completed, nor is the declining trend in appropriations for defense production. Analysts see, for the remaining years of the 20th century, further reduced defense activity, additional facility shrinkage, and more loss of employees.

The aerospace/defense industry had looked forward to 1999, the Administration's stated target year for completing the defense restructuring, as a time of renewed stability in defense production. However, although the Department of Defense may complete the reduction in military strength by 1999, there are indications that the modernization element of the restructuring program will be deferred until after 2000. This introduces a new level of uncertainty in industry planning, because production of existing defense systems is winding down and manufacturers do not know when they will be able to begin production of advanced equipment now in development. They can only

assume that the dictates of national security in a volatile world will command a level of appropriations sufficient to carry out essential force modernization early in the 21st century.

Fabrication of space systems, which in 1994 became the second largest area of industry sales (after military aircraft), is expected to continue at something close to current levels through the early years of the new century, with gradually increasing commercial sales offsetting austere government funding.

Commercial aircraft manufacture offers the greatest promise for the industry's future. A consensus of market projections predicts an enormous commercial transport market in the neighborhood of \$1 trillion over the 20-year span 1995-2015. Demand of that order will boost jetliner production to unprecedented levels, but probably not until after 2000; the extended financial difficulties of the airlines have left many of them with heavy debt and restricted their abilities to initiate immediate reequipment programs. So the uptrend in jetliner purchases is expected to be moderate in near-future years, accelerating to new

record levels after the turn of the century.

The aerospace outlook, therefore, is for further compression of the industry during a now-lengthened period of transition until defense production stabilizes in the first decade of the new century. The industry that emerges will be smaller and leaner, oriented primarily toward manufacture of commercial aircraft, buttressed by moderate defense and space activity.

The challenge for the industry is to complete the transition without further loss of technological capability or competitiveness. The impressive manner in which our companies have handled the myriad difficulties of enforced downsizing thus far lends encouragement to the belief that they will successfully manage the remaining transition and retain world leadership in aerospace manufacture.



Don Fuqua
Don Fuqua
President
Aerospace Industries
Association

Aerospace Summary

The aerospace year 1994 was more or less a mirror image of its predecessor, characterized by substantial reductions in overall sales and in every product category. With three principal business components—defense, space, and commercial aircraft—simultaneously in decline, sales fell almost 10 percent after an 11 percent drop in 1993.

The year-end backlog declined by 11 percent. The bright spot in an otherwise bleak picture was an upturn in net new orders, a gain of 14 percent after four years of decline, auguring an improvement in the industry's activity in near-future years.

Here is a breakdown of the industry's 1994 performance:

Sales. Industry sales amounted to \$111.2 billion, compared with \$123.4 billion in 1993. Even after seven years of declining defense production, the Department of Defense (DoD) remained the industry's principal customer. Defense sales amounted to \$44 billion, down from \$46.4 billion. Sales to non-U.S. government customers, half of which represented deliveries of airline transports, came to \$36.7 billion, down from \$44.1 billion.

Aircraft deliveries predominated in a breakdown of sales by product group. Sales of aircraft, engines, and parts, civil and military combined, totaled \$58.1 billion,

or 52 percent of sales; this compares with \$66.3 billion in 1993.

After two years in which civil aircraft sector sales topped sales of military aircraft products and services, military aircraft once again took No. 1 ranking among the product groups. Sales of military aircraft products and services amounted to \$32.1 billion (down from \$32.5 billion). Civil aircraft sector sales, at \$26 billion, were down significantly from \$33.8 billion in 1993.

Space sector sales experienced their second consecutive drop after 19 years of consistent increase; 1994 sales came to \$26.7 billion, down from \$28.5 billion.

Sales of missile systems, parts, and services continued the downward trend in evidence since 1990, down to \$7.9 billion from \$8.1 billion in 1993. "Related products and services" sales were \$18.6 billion, down from \$20.6 billion.

For 1994, aerospace industry sales amounted to 1.7 percent of the nation's Gross Domestic Product, down from 1.9 percent. Aerospace sales represented 3.3 percent of total sales by all U.S. manufacturing industries.

Earnings. The industry reported net income after taxes of \$5.7 billion, technically an all-time high. However, much of the profit stemmed from sales of assets, reduced payroll costs, and lower levels

of investment in research and development and plant and equipment.

As a percentage of sales, the industry's net profits after taxes came to 4.7 percent; the average for all U.S. manufacturing was 5.4 percent. As a percentage of assets, the aerospace figure was 4.3 percent, the all-industry average 5.8 percent.

The aerospace balance sheet, reported by the Bureau of the Census, showed an increase in net working capital from \$14.2 billion in 1993 to \$15.7 billion in 1994. Total assets declined to \$132.3 billion from 1993's \$132.7 billion.

Orders and Backlog. After four years of decline, net new orders for aerospace systems increased to \$87 billion in 1994, compared with \$76.5 billion in 1993. Orders from military agencies totaled \$52.9 billion (up from \$45 billion) and non-military orders came to \$34 billion (up from \$31.5 billion).

The industry's backlog, however, continued on the downward trend that began in 1990. At year-end 1994 it was \$183.5 billion, down from \$207.1 billion.

At \$107 billion (down from \$121.2 billion), the non-military backlog was 58 percent of the total. The military component was \$76.5 billion, down from \$85.8 billion.

Civil Aircraft Production.

Since the mid-1980s, commercial aircraft production has accounted for

upwards of 80 percent of the value of all U.S.-built civil aircraft. In 1994, commercial transport manufacture accounted for \$18.1 billion, or 88 percent, of the \$20.7 billion worth of civil aircraft shipped (the \$20.7 billion figure does not match the \$26 billion reported in the breakdown by category on page 15 because the latter includes engine and parts sales). Both the commercial transport and the civil aircraft totals represent declines from 1993, when the total was \$26.4 billion and transport sales amounted to \$24.1 billion.

General aviation production continued on the rebound that began in 1993 after a long, steep decline from the peak year 1978. Sales totaled \$2.4 billion, up from \$2.1 billion in 1993. The industry produced 928 planes, down from 964.

Sales of civil helicopters also showed improvement. In 1994, the industry turned out 308 rotary-wing aircraft worth \$185 million; the figures for 1993 were 258 units valued at \$113 million.

Total backlog for commercial transport aircraft declined from \$77.7 billion at year-end 1993 to \$67.7 billion, and from 1,356 orders on the books to 1,126. Some 63 percent of the backlog value was in orders from foreign customers.

Military Aircraft Production.

According to AIA statistics, military

aircraft sector sales in 1994 were \$32.1 billion, down from \$32.5 billion in 1993. The Bureau of the Census, whose data do not include the substantial military investment in Research, Development, Test, and Evaluation (RDT&E), reported aircraft sales to military customers at \$20.4 billion (up from \$15.4 billion).

Net new orders for military aircraft, engines, and parts (Census data) came to \$22.6 billion, up from \$15 billion in 1993. However, the backlog declined to \$36.1 billion at year-end 1994 from \$36.7 billion.

Foreign Trade. The industry recorded an excellent performance in international trade, but a depressed global market caused a decline in exports and trade balance.

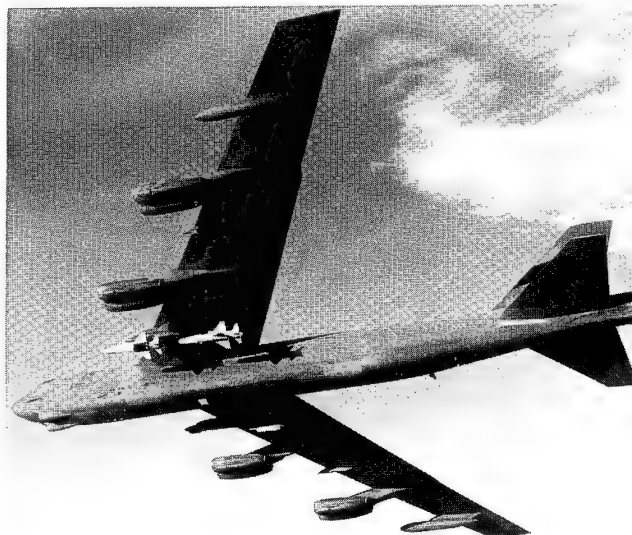
Exports totaled \$37.4 billion, five percent below 1993's \$39.4 billion. At \$25 billion, the trade balance was down 8.2 percent from the previous year's \$27.2 billion. U.S. aerospace imports, at \$12.4 billion, were up only slightly from the level of the previous year.

In dollar value, 53 percent of the civil export

volume (\$30 billion) was in sales of airline transports. Military exports, at \$7.3 billion, were down from 1993's \$7.6 billion.

Space Systems. AIA estimated sales of space systems, civil and military combined (including RDT&E), at \$26.7 billion, down from \$28.5 billion. Using a reporting basis that excludes launch vehicle engines/motors, spacecraft orbital adjustment systems, and RDT&E outlays, the Bureau of the Census reported a gain of more than 23 percent: sales of \$10.3 billion in 1994, compared with \$8.3 billion in 1993.

Census reported net new orders (again excluding RDT&E and propulsion systems) totaling \$8.8 billion, down from \$9.7 billion. Military orders, at \$4.9 billion, were



close to 1993's level, but non-military orders were down, from \$4.6 billion in 1993 to \$3.9 billion.

The industry's backlog of orders for space systems at year-end 1994 was \$13.1 billion, down from \$15.2 billion in 1993.

Missile Systems. Sales of missile systems (including RDT&E) continued on the downward trend in evidence throughout the 1990s. AIA reported sales of \$7.9 billion in 1994, down slightly from \$8.1 billion in the previous year. The Bureau of the Census, whose figures do not include missile propulsion units, showed sales of \$5.3 billion, down from 1993's \$7.7 billion.

Net new orders (Census data) amounted to only \$2.8 billion in 1994, compared with \$4.8 billion in the previous year. The backlog for missile systems was \$6 billion, down 36 percent from \$9.3 billion.

Research and Development. Federal government funding for research and development (R&D) reached an all-time high of \$68.5 billion in 1994, but it was a hollow record in that outlays actually declined in constant dollar terms.

The Office of Management and Budget (OMB) projected Fiscal Year (FY) 1995 total federal R&D outlays of \$68.9 billion, another decline in constant dollars. OMB estimates FY 1996 outlays at \$69.4 billion, which

would be a current-dollar "record" but a moderate decrease in constant dollars. The DoD would spend \$35.2 billion, more than half the total; NASA, \$8.7 billion (down slightly); and the Department of Energy \$6.3 billion (up slightly).

In 1994, funding for R&D in the U.S. amounted to \$169.1 billion, up from \$165.8 billion in the previous year, according to the National Science Foundation. Industry funding, at \$99.7 billion, was 59 percent of the total, federal funding (\$61 billion) more than 36 percent, colleges & universities (\$5.4 billion) more than three percent, and nonprofit institutions (\$3 billion) less than two percent. The bulk of R&D was performed by industry (71 percent).

Employment. Under the pressure of recessions in defense production and commercial aircraft manufacture, and with space activity at a stagnant level, aerospace employment continued its downward slide.

On an annual average basis, the labor force was reduced by almost 12 percent to a level of 852,000. This was the fifth straight decline since the industry's peak employment level in 1989; the cumulative manpower loss over these five years represented more than 35 percent of the peak total. Further decline was indicated for 1995.

AEROSPACE FACTS AND FIGURES 1995/1996

**STANDARD INDUSTRIAL CLASSIFICATIONS APPLICABLE TO THE
AEROSPACE INDUSTRY**

<p>3721 AIRCRAFT</p> <p>37211 Military aircraft</p> <p>37215 Civilian aircraft</p> <p>37217 Modification, conversion, and overhaul of previously accepted aircraft</p> <p>37218 Aeronautical services on complete aircraft, nec</p> <p>3724 AIRCRAFT ENGINES AND ENGINE PARTS</p> <p>37241 Aircraft engines for military aircraft</p> <p>37242 Aircraft engines for civilian aircraft</p> <p>37243 Aeronautical services on aircraft engines</p> <p>37244 Aircraft engine parts and accessories</p> <p>3728 AIRCRAFT PARTS AND AUXILIARY EQUIPMENT, NEC</p> <p>37281 Aircraft parts and auxiliary equipment, nec</p> <p>37282 Aircraft propellers and helicopter rotors</p> <p>37283 Research and development on aircraft parts</p> <p>3761 GUIDED MISSILES AND SPACE VEHICLES</p> <p>37611 Complete guided missiles (excluding propulsion systems)</p> <p>37612 Complete space vehicles (excluding propulsion systems)</p> <p>37613 Research and development on complete guided missiles</p> <p>37614 Research and development on complete space vehicles</p> <p>37615 All other services on complete guided missiles and space vehicles</p> <p>3663 RADIO AND TELEVISION COMMUNICATIONS EQUIPMENT</p> <p>36631 Communication systems and equipment, except broadcast</p>	<p>3764 SPACE PROPULSION UNITS AND PARTS</p> <p>37645 Complete missile or space vehicle engines and/or propulsion units</p> <p>37646 Research and development on complete missile or space vehicle engines and/or propulsion units</p> <p>37647 Services on complete guided missile or space vehicle engines and/or propulsion units, nec</p> <p>37648 Missile and space vehicle engine and/or propulsion unit parts and accessories</p> <p>3769 SPACE VEHICLE EQUIPMENT, NEC</p> <p>37692 Missile and space vehicle components, parts and subassemblies, nec</p> <p>37694 Research and development on missile and space vehicle parts and components, nec</p> <p>3669 COMMUNICATIONS EQUIPMENT, NEC</p> <p>36691 Alarm systems</p> <p>36692 Traffic control equipment</p> <p>36693 Intercommunication equipment</p> <p>3812 SEARCH, DETECTION, NAVIGATION, GUIDANCE, AERONAUTICAL AND NAUTICAL SYSTEMS, INSTRUMENTS, AND EQUIPMENT</p> <p>38121 Aeronautical, nautical, and navigational instruments, not sending or receiving radio signals</p> <p>38122 Search, detection, navigation, and guidance systems and equipment</p> <p>3829 MEASURING AND CONTROLLING DEVICES, NEC</p> <p>38291 Aircraft engine instruments, except flight</p>
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Source: Office of Management and Budget, "Standard Industrial Classification Manual, 1987."

NOTE: The Standard Industrial Classification (SIC) is a system developed by the U.S. Government to define the industrial composition of the economy, facilitating comparability of statistics. It is revised periodically to reflect the changing industrial composition of the economy.

NEC: Not elsewhere classified.

AEROSPACE SUMMARY

AEROSPACE INDUSTRY SALES BY CUSTOMER

Calendar Years 1980-1994

(Millions of Dollars)

Year	TOTAL SALES	Aerospace Products and Services				Related Products and Services
		Total	U.S. Government		Other Customers	
			Dept. of Defense	NASA and Other Agencies		
CURRENT DOLLARS						
1980	\$ 54,697	\$ 45,878	\$22,795	\$ 4,106	\$18,977	\$ 8,819
1981	63,974	53,090	27,244	4,709	21,137	10,884
1982	67,756	56,366	34,016	4,899	17,451	11,390
1983	79,975	66,646	41,558	5,910	19,178	13,329
1984	83,486	69,572	45,969	6,063	17,540	13,914
1985	96,571	80,476	53,178	6,262	21,036	16,095
1986	106,183	88,486	59,161	6,236	23,089	17,697
1987	110,008	91,673	61,817	6,813	23,043	18,335
1988	114,562	95,468	61,327	7,899	26,242	19,094
1989	120,534	100,445	61,199	9,601	29,645	20,089
1990	134,375	111,979	60,502	11,097	40,379	22,396
1991	139,248	116,040	56,619	11,739	48,379	23,208
1992	138,591	115,493	52,202	12,408	50,882	23,099
1993 ^r	123,416	102,847	46,441	12,267	44,139	20,569
1994	111,223	92,686	44,013	11,936	36,737	18,577
CONSTANT DOLLARS ^a						
1980	\$ 77,475	\$ 64,983	\$32,288	\$ 5,816	\$26,880	\$12,492
1981	80,470	66,780	34,269	5,923	26,587	13,691
1982	77,083	64,125	38,699	5,573	19,853	12,958
1983	86,741	72,284	45,074	6,410	20,800	14,457
1984	83,653	69,711	46,061	6,075	17,575	13,942
1985	97,843	81,536	53,878	6,344	21,313	16,307
1986	106,396	88,663	59,280	6,248	23,135	17,732
1987	110,008	91,673	61,817	6,813	23,043	18,335
1988	112,426	93,688	60,184	7,752	25,753	18,738
1989	113,604	94,670	57,680	9,049	27,941	18,934
1990	121,606	101,338	54,753	10,043	36,542	20,268
1991	121,508	101,257	49,406	10,243	42,216	20,251
1992	118,050	98,376	44,465	10,569	43,341	19,675
1993 ^r	102,166	85,138	38,445	10,155	36,539	17,027
1994	90,943	75,786	35,988	9,760	30,038	15,190

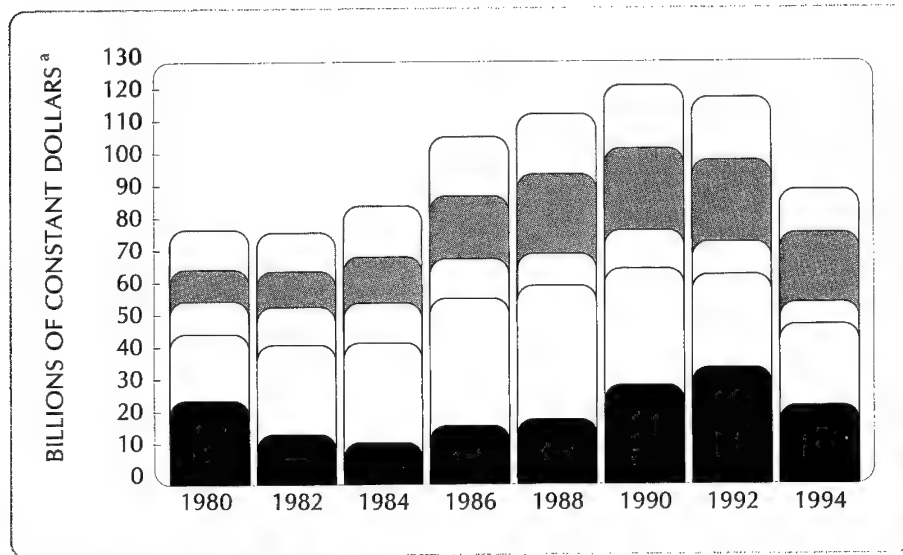
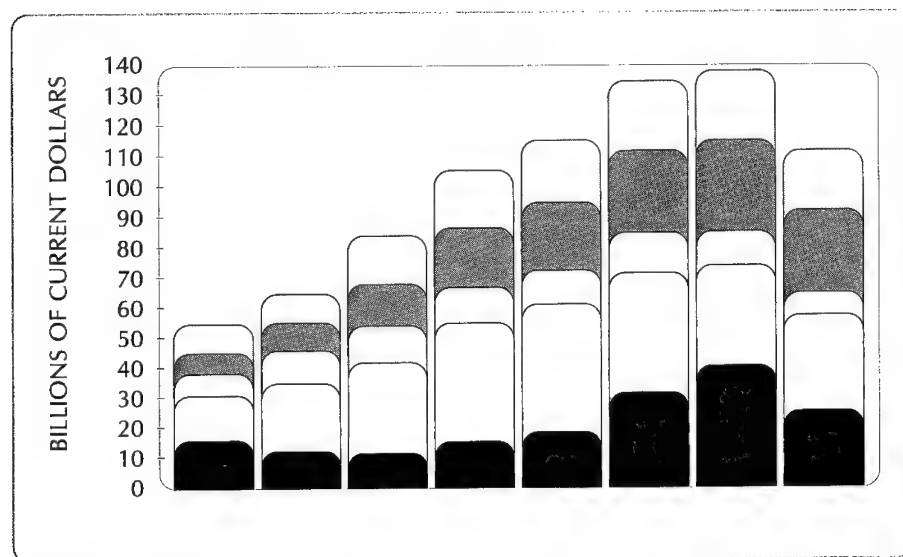
Source: Aerospace Industries Association.

NOTE: See Glossary for explanation of "Aerospace Industry," "Aerospace Sales," "Other Customers," and "Related Products and Services."

^a Based on AIA's aerospace composite price deflator, 1987=100.

^r Revised.

Aerospace Sales by Product Group



■ CIVIL AIRCRAFT ■ MISSILES ■ SPACE
 □ MILITARY AIRCRAFT ■ RELATED PRODUCTS AND SERVICES

SOURCE: AEROSPACE INDUSTRIES ASSOCIATION

^a BASED ON AIA'S AEROSPACE COMPOSITE PRICE DEFLATOR (1987 = 100)

AEROSPACE SUMMARY

AEROSPACE INDUSTRY SALES BY PRODUCT GROUP

Calendar Years 1980-1994
(Millions of Dollars)

Year	TOTAL SALES	Aircraft			Missiles	Space	Related Products & Services
		Total	Civil	Military			
CURRENT DOLLARS							
1980	\$ 54,697	\$31,464	\$16,285	\$15,179	\$ 6,469	\$ 7,945	\$ 8,819
1981	63,974	36,062	16,427	19,635	7,640	9,388	10,884
1982	67,756	35,484	10,982	24,502	10,368	10,514	11,390
1983	79,975	42,431	12,373	30,058	10,269	13,946	13,329
1984	83,486	41,905	10,690	31,215	11,335	16,332	13,914
1985	96,571	50,482	13,730	36,752	11,438	18,556	16,095
1986	106,183	56,405	15,718	40,687	11,964	20,117	17,697
1987	110,008	59,188	15,465	43,723	10,219	22,266	18,335
1988	114,562	60,886	19,019	41,867	10,270	24,312	19,094
1989	120,534	61,550	21,903	39,646	13,622	25,274	20,089
1990	134,375	71,353	31,262 ^r	40,091	14,180	26,446	22,396
1991	139,248	75,918	37,443	38,475	10,970	29,152	23,208
1992	138,591	73,905	39,897	34,008	11,757	29,831	23,099
1993 ^r	123,416	66,258	33,750	32,508	8,080	28,509	20,569
1994	111,223	58,088	25,983	32,105	7,903	26,695	18,577
CONSTANT DOLLARS ^a							
1980	\$ 77,475	\$44,567	\$23,067	\$21,500	\$ 9,163	\$11,254	\$12,492
1981	80,470	45,361	20,663	24,698	9,610	11,809	13,691
1982	77,083	40,369	12,494	27,875	11,795	11,961	12,958
1983	86,741	46,021	13,420	32,601	11,138	15,126	14,457
1984	83,653	41,989	10,711	31,278	11,358	16,365	13,942
1985	97,843	51,147	13,911	37,236	11,589	18,800	16,307
1986	106,396	56,518	15,749	40,769	11,988	20,157	17,732
1987	110,008	59,188	15,465	43,723	10,219	22,266	18,335
1988	112,426	59,751	18,664	41,086	10,079	23,859	18,738
1989	113,604	58,011	20,644	37,367	12,839	23,821	18,934
1990	121,606	64,573	28,291 ^r	36,281	12,833	23,933	20,268
1991	121,508	66,246	32,673	33,573	9,572	25,438	20,251
1992	118,050	62,951	33,984	28,968	10,014	25,410	19,675
1993 ^r	102,166	54,849	27,939	26,911	6,689	23,600	17,027
1994	90,943	47,496	21,245	26,251	6,462	21,827	15,190

Source: Aerospace Industries Association.

NOTE: See Glossary for explanation of "Aerospace Industry," "Aerospace Sales," "Other Customers," and "Related Products and Services."

a Based on AIA's aerospace composite deflator, 1987=100.

r Revised.

AEROSPACE FACTS AND FIGURES 1995/1996

SALES OF MAJOR AEROSPACE COMPANIES AS REPORTED BY THE BUREAU OF THE CENSUS

Calendar Years 1980-1994
(Millions of Dollars)

Year	GRAND TOTAL	TOTAL		Aircraft, En- gines, & Parts		Missiles, Space, & Rocket Propul- sion	Other Aerospace		Non- Aero- space
		Mili- tary	Non- Mil.	Mili- tary	Non- Mil.		Mili- tary	Non- Mil.	
CURRENT DOLLARS									
1980	\$ 58,440	\$26,666	\$31,774	\$10,973	\$18,561	\$ 8,393	\$ 6,431	\$3,047	\$11,045
1981	69,944	33,876	36,068	14,575	18,999	9,722	7,634	3,905	15,109
1982	75,487	43,281	32,206	17,743	14,143	11,980	9,408	5,454	16,759
1983	83,453	50,525	32,928	19,809	16,070	12,745	12,310	3,179	19,340
1984	88,941	57,047	31,894	23,268	14,017	13,624	12,245	3,257	22,530
1985	100,522	65,098	35,424	25,758	18,182	16,741	14,491	3,675	21,675
1986	105,577	68,303	37,274	27,043	20,714	17,535	16,287	3,520	20,478
1987	110,301	70,194	40,107	27,806	21,256	20,715	15,786	3,429	21,309
1988	113,548	69,448	44,100	25,068	25,674	21,514	16,382	2,946	21,964
1989	122,148	71,647	50,501	24,287	29,539	22,643	16,908	3,605	25,167
1990	136,646	73,616	63,030	27,667	38,622	22,040	15,773	4,342	28,202
1991	123,862	67,089	56,773	25,385	43,155	23,311	13,472	4,281	14,258
1992	118,736	61,410	57,326	23,509	44,160	21,349	12,153	3,377	14,188
1993	108,135 ^r	53,291	54,844	15,374	41,015	19,126 ^r	11,936	3,592	15,179 ^r
1994	100,332	54,622	45,710	20,400	30,618	18,215	11,968	4,086	15,045
CONSTANT DOLLARS ^a									
1980	\$ 82,776	\$37,771	\$45,006	\$15,528	\$26,290	\$11,888	\$ 9,109	\$4,316	\$15,644
1981	87,980	42,611	45,369	18,333	23,898	12,229	9,603	4,912	19,005
1982	85,878	49,239	36,639	20,185	16,090	13,629	10,703	6,205	19,066
1983	90,513	54,799	35,714	21,485	17,430	13,823	13,351	3,448	20,976
1984	89,119	57,161	31,958	23,315	14,405	13,651	12,270	3,264	22,575
1985	101,846	65,955	35,891	26,097	18,421	16,961	14,682	3,723	21,960
1986	105,789	68,440	37,349	27,097	20,756	17,570	16,320	3,527	20,519
1987	110,301	70,194	40,107	27,806	21,256	20,715	15,786	3,429	21,309
1988	111,431	68,153	43,278	24,601	25,195	21,113	16,077	2,891	21,554
1989	115,125	67,528	47,598	22,891	27,840	21,341	15,936	3,398	23,720
1990	123,662	66,621	57,041	25,038	34,952	19,946	14,274	3,929	25,522
1991	108,082	58,542	49,540	22,151	37,657	20,341	11,756	3,736	12,442
1992	101,138	52,308	48,830	20,025	37,615	18,185	10,352	2,876	12,085
1993	89,516 ^r	44,115	45,401	12,727	33,953	15,833 ^r	9,881	2,974	12,565 ^r
1994	82,038	44,662	37,375	16,680	25,035	14,894	9,786	3,341	12,302

Source: Bureau of the Census, "Aerospace Industry (Orders, Sales, and Backlog)" Series MA37D (Annually).

Note: The detail necessary to report orders, sales, and backlog by customer (ie U.S. Gov't vs Other) has been withheld by the Census Bureau. Consequently, this table has been recomputed showing orders, sales, and backlog by application (ie Military vs Non-military).

^a Based on AIA's aerospace composite price deflator, 1987=100.

^r Revised.

AEROSPACE SUMMARY

ORDERS AND BACKLOG OF MAJOR AEROSPACE COMPANIES AS REPORTED BY THE BUREAU OF THE CENSUS

Calendar Years 1980-1994
(Millions of Dollars)

Year	GRAND TOTAL	TOTAL		Aircraft, En- gines, & Parts		Missiles, Space, & Rocket Propul- sion	Other Aerospace		Non- Aero- space
		Mili- tary	Non- Mil.	Mili- tary	Non- Mil.		Mili- tary	Non- Mil.	
NET NEW ORDERS									
1980	\$ 69,624	\$ 35,570	\$ 34,054	\$ 15,208	\$ 19,137	\$ 9,818	\$ 8,134	\$ 3,181	\$ 12,144
1981	74,922	43,147	31,775	19,228	15,208	12,172	9,367	1,925	14,803
1982 ^a	89,168 ^a	60,759 ^a	28,409 ^a	24,186	9,589	13,858	13,570	3,636	20,058
1983	91,647	62,053	29,594	26,231	12,368	14,248	14,342	3,508	20,950
1984	104,863	69,654	35,209	29,894	17,208	16,485	13,673	3,838	23,765
1985	110,968	70,978	39,990	28,201	21,471	20,328	14,488	3,042	23,168
1986	110,836	70,132	40,704	24,124	23,833	20,445	16,836	3,510	22,088
1987	121,224	67,594	53,630	19,347	33,000	26,272	14,178	4,379	24,048
1988	147,128	69,209	77,919	24,242	57,906	20,240	18,423	3,044	23,273
1989	173,635	79,992	93,643	28,818	67,773	26,820	17,814	3,945	28,465
1990	145,965	56,405	89,560	17,735	64,651	20,207	12,945	3,556	26,871
1991	122,485	63,017	59,468	26,675	40,815	24,955	11,329	4,360	14,351
1992	100,306	57,383	42,923	16,631	30,110	22,849	11,201	3,256	13,259
1993 ^f	76,532	44,045	31,487	15,023	16,085	16,180	11,121	4,630	13,494
1994	86,977	52,928	34,049	22,628	19,450	14,049	12,728	4,415	13,707
BACKLOG AS OF DECEMBER 31									
1980	\$ 89,732	\$ 45,480	\$ 44,252	\$ 23,472	\$ 33,165	\$ 8,941	\$ 8,637	\$ 3,618	\$ 9,702
1981	94,710	54,751	39,959	26,867	29,045	11,255	9,701	2,482	12,925
1982 ^a	108,391 ^a	72,229 ^a	36,162 ^a	33,309	24,845	13,125	13,864	1,790	16,538
1983	116,585	83,757	32,828	38,824	21,548	14,962	18,483	3,690	19,078
1984	132,507	96,364	36,143	45,450	24,739	17,823	19,911	4,271	20,313
1985	142,953	102,244	40,709	47,893	28,298	21,410	19,908	3,638	21,806
1986	148,212	104,073	44,139	44,974	31,417	24,320	20,457	3,628	23,416
1987	158,650	99,474	59,176	36,514	43,501	30,544	18,937	4,604	24,550
1988	191,518	99,117	92,401	35,515	75,765	29,078	20,584	4,734	25,842
1989	252,401	114,070	138,331	44,026	115,124	33,771	24,186	7,652	27,642
1990	250,079	88,471	161,608	33,788	139,152	31,648	18,501	4,999	21,991
1991	245,241	89,517	155,724	39,149	134,527	32,657	17,213	4,907	16,788
1992	236,076	92,139	143,937	44,255	124,322	32,933	14,886	4,859	14,821
1993 ^f	207,058	85,813	121,246	36,725	96,225	31,484	16,658	8,118	17,847
1994	183,458	76,491	106,967	36,090	84,604	25,797	15,167	6,816	14,985

Source: Bureau of the Census, "Aerospace Industry (Orders, Sales, and Backlog)" Series MA37D (Annually).

Note: The detail necessary to report orders, sales, and backlog by customer (ie U.S. Gov't vs Other) has been withheld by the Census Bureau. Consequently, this table has been recomputed showing orders, sales, and backlog by application (ie Military vs Non-military).

a 1979 and 1982 Orders and Backlog Totals are final revisions for which product group detail is not available.

r Revised.

AEROSPACE FACTS AND FIGURES 1995/1996

AEROSPACE SALES AND THE NATIONAL ECONOMY

Calendar Years 1980-1994
(Billions of Dollars)

Year	Gross Domestic Product	Industry Sales			Aerospace Sales As Percent of			
		Manufacturing	Durable Goods	Aerospace	GDP	Manufacturing	Durable Goods	
CURRENT DOLLARS								
1980	\$2,708.0	\$1,853.2	\$ 929.3	\$ 54.7	2.0 %	3.0%	5.9 %	
1981	3,030.6	2,016.9	1,003.9	64.0	2.1	3.2	6.4	
1982	3,149.6	1,959.3	950.0	67.8	2.2	3.5	7.1	
1983	3,405.0	2,071.3	1,026.5	80.0	2.3	3.9	7.8	
1984	3,777.2	2,288.0	1,174.7	83.5	2.2	3.6	7.1	
1985	4,038.7	2,332.3	1,214.1	96.6	2.4	4.1	8.0	
1986	4,268.6	2,334.6	1,237.8	106.2	2.5	4.5	8.6	
1987	4,539.9	2,474.0	1,296.2	110.0	2.4	4.4	8.5	
1988	4,900.4	2,681.0	1,414.8	114.6	2.3	4.3	8.1	
1989	5,250.8	2,790.3	1,458.5	120.5	2.3	4.3	8.3	
1990	5,546.1	2,870.0	1,466.0	134.4	2.4	4.7	9.2	
1991	5,724.8	2,825.8	1,430.0	139.2	2.4	4.9	9.7	
1992	6,020.2	2,931.9	1,505.8	138.6	2.3	4.7	9.2	
1993	6,343.3	3,100.1	1,628.9	123.4 ^r	1.9 ^r	4.0	7.6	
1994	6,738.4	3,364.6	1,809.4	111.2	1.7	3.3	6.1	
CONSTANT DOLLARS ^a					Real Annual Growth ^b			
					GDP	Mfg.	Durs.	Aero.
1980	\$3,776.3	\$2,584.3	\$1,296.0	\$ 77.5	(0.5)%	(1.9)%	(6.7)%	8.3%
1981	3,843.0	2,557.5	1,273.1	80.5	1.8	(1.0)	(1.8)	3.9
1982	3,760.3	2,339.2	1,134.2	77.1	(2.2)	(8.5)	(10.9)	(4.2)
1983	3,906.6	2,376.5	1,177.7	86.7	3.9	1.6	3.8	12.5
1984	4,150.8	2,514.3	1,290.9	83.7	6.2	5.8	9.6	(3.6)
1985	4,279.6	2,471.5	1,286.5	97.8	3.1	(1.7)	(0.3)	17.0
1986	4,404.3	2,408.8	1,277.2	106.4	2.9	(2.5)	(0.7)	8.7
1987	4,539.9	2,474.0	1,296.2	110.0	3.1	2.7	1.5	3.4
1988	4,718.7	2,581.6	1,362.4	112.4	3.9	4.4	5.1	2.2
1989	4,839.4	2,571.7	1,344.2	113.6	2.6	(0.4)	(1.3)	1.0
1990	4,895.1	2,533.1	1,293.9	121.6	1.1	(1.5)	(3.7)	7.0
1991 ^r	4,868.0	2,402.9	1,216.0	121.5	(0.6)	(5.1)	(6.0)	(0.1)
1992 ^r	4,979.5	2,425.1	1,245.5	118.1	2.3	0.9	2.4	(2.8)
1993 ^r	5,136.3	2,510.2	1,318.9	102.2	3.1	3.5	5.9	(13.5)
1994	5,339.5	2,666.1	1,433.8	90.9	4.0	6.2	8.7	(11.0)

Source: Council of Economic Advisors, "Economic Indicators" (Monthly); Bureau of Census; and Aerospace Industries Association.

a Aerospace industry constant dollar sales based on AIA's aerospace composite price deflator, 1987=100. Others based on GDP implicit price deflator, 1987=100.

b Parentheses indicate negative real annual growth.

r Revised.

AEROSPACE SUMMARY

GROSS DOMESTIC PRODUCT, FEDERAL BUDGET, AND DEFENSE BUDGET

Fiscal Years 1962–1996
(Billions of Dollars)

Year	Fiscal Year GDP	Federal Budget Outlays		Defense Outlays ^c as percent of	
		Net Total ^a	National Defense ^b	GDP	Federal Budget
1962	\$ 555.2	\$ 106.8	\$ 52.3	9.4%	49.0%
1963	584.5 ^r	111.3	53.4	9.1	48.0
1964	625.3	118.5	54.8	8.8	46.2
1965	671.0	118.2	50.6	7.5	42.8
1966	735.4	134.5	58.1	7.9	43.2
1967	793.3	157.5	71.4	9.0	45.4
1968	847.2	178.1	81.9	9.7	46.0
1969	925.7	183.6	82.5	8.9	44.9
1970	985.4	195.6	81.7	8.3	41.8
1971	1,050.9	210.2	78.9	7.5	37.5
1972	1,147.8	230.7	79.2	6.9	34.3
1973	1,274.0	245.7	76.7	6.0	31.2
1974	1,403.6	269.4	79.3	5.7	29.5
1975	1,509.8	332.3	86.5	5.7	26.0
1976	1,684.2	371.8	89.6	5.3	24.1
Tr.Qtr.	445.0	96.0	22.3	5.0	23.2
1977	1,917.2	409.2	97.2	5.1	23.8
1978	2,155.0	458.7	104.5	4.8	22.8
1979	2,429.5	503.5	116.3	4.8	23.1
1980	2,644.1	590.9	134.0	5.1	22.7
1981	2,964.4	678.2	157.5	5.3	23.2
1982	3,122.2	745.8	185.3	5.9	24.8
1983	3,316.5	808.4	209.9	6.3	26.0
1984	3,695.0	851.8	227.4	6.2	26.7
1985	3,967.7	946.4	252.7 ^b	6.4	26.7
1986	4,219.0	990.3	273.4	6.5	27.6
1987	4,452.4	1,003.9	282.0	6.3	28.1
1988	4,808.4	1,064.1	290.4	6.0	27.3
1989	5,173.3	1,143.2	303.6	5.9	26.6
1990	5,481.5	1,252.7	299.3	5.5	23.9
1991 ^f	5,676.4	1,323.4	273.3 ^c	4.8	20.7
1992	5,921.5 ^r	1,380.9	298.4 ^c	5.0 ^r	21.6
1993 ^r	6,258.6	1,408.7	291.1 ^c	4.7	20.7
1994	6,633.6	1,460.9	281.6	4.2	19.3
1995 ^E	7,024.1	1,538.9	271.6	3.9	17.6
1996 ^E	7,407.0	1,612.1	261.4	3.5	16.2

Source: Office of Management and Budget, "The Budget of the United States Government" (Annually).

a "Net Total" is government-wide total less intragovernmental transactions.

b "National Defense" includes the military budget of DoD and other defense-related activities. Beginning in 1985, the Federal Budget reflects establishment of a military retirement trust fund. Data for prior years adjusted for comparable treatment of military retired pay.

c 1991–1993 reflects transfers from the Defense Cooperation Account funded by foreign government and private cash contributions reducing total U.S.-funded military outlays.

E Estimate.

r Revised.

Tr.Qtr. See Glossary.

AEROSPACE FACTS AND FIGURES 1995/1996

FEDERAL OUTLAYS DEFENSE, NASA, AND AEROSPACE PRODUCTS & SERVICES

Fiscal Years 1968–1996
(Millions of Dollars)

Year	TOTAL National Defense	TOTAL NASA	Federal Outlays for Aerospace Products & Services			Aero- space as Percent of Total National Defense and NASA
			TOTAL	DoD ^a	NASA	
1968	\$ 81,926	\$ 4,724	\$16,279	\$11,681	\$ 4,598	18.8%
1969	82,497	4,252	15,872	11,686	4,186	18.3
1970	81,692	3,753	14,559	10,860	3,699	17.0
1971	78,872	3,382	12,918	9,580	3,338	15.7
1972	79,174	3,423	12,309	8,936	3,373	14.9
1973	76,681	3,315	11,360	8,089	3,271	14.2
1974	79,347	3,256	11,168	7,987	3,181	13.5
1975	86,509	3,267	11,544	8,373	3,181	12.9
1976	89,619	3,669	12,364	8,816	3,548	13.3
Tr.Qtr.	22,269	951	2,855	1,959	926	12.3
1977	97,241	3,945	13,229	9,389	3,840	13.1
1978	104,495	3,983	13,926	10,067	3,859	12.8
1979	116,342	4,197	16,686	12,622	4,064	13.8
1980	133,995	4,852	20,269	15,558	4,711	14.6
1981	157,513	5,421	24,276	19,002	5,274	14.9
1982	185,309	6,035	29,501	23,575	5,926	15.4
1983	209,903	6,664	35,364	28,808	6,556	16.3
1984	227,413	7,048	39,663	32,723	6,940	16.9
1985	252,748	7,318	44,483	37,335	7,148	17.1
1986	273,375	7,404	49,773	42,558	7,215	17.7
1987	281,999	7,591	51,871	44,429	7,442	17.9
1988	290,361	9,092	48,848	39,922	8,926	16.3
1989	303,559	11,036 ^r	52,933	42,072	10,861	16.8
1990	299,331	12,429	53,194	40,992	12,202	17.1
1991 ^b	273,292	13,878	53,630	40,089	13,541	18.7
1992 ^b	298,350	13,961	50,569	37,085	13,484	16.2
1993 ^b	291,086	14,305 ^r	45,496	31,763	13,733	14.9
1994	281,563	13,695	41,082	27,774	13,308	13.9
1995 ^E	271,600	14,241	38,009	24,321	13,688	13.3
1996 ^E	261,424	14,127	35,544	21,579	13,965	12.9

Source: Office of Management and Budget, "The Budget of the United States Government" (Annually); Department of Defense, "Status of Funds" (Annual Summaries); and NASA, "Pocket Statistics" (Annually).

NOTE: "National Defense" includes the military budget of the Department of Defense and other defense-related activities. "TOTAL NASA" includes all categories of the NASA budget; NASA construction is not included in "Aerospace Products and Services." See additional explanation with following table.

a Outlays for aircraft and missile procurement. Does not include RDT&E, which DoD has not reported by product group since 1977, and which, for comparability, has been subtracted from data previously reported in this table for earlier years. Also included are revisions to missile procurement data.

b 1991–1993 reflects transfers from the Defense Cooperation Account funded by foreign government and private cash contributions reducing total U.S.-funded military outlays.

E Estimate. Latest year reflects Administration's budget proposal.

r Revised.

Tr.Qtr. See Glossary.

AEROSPACE SUMMARY

FEDERAL OUTLAYS FOR AEROSPACE PRODUCTS AND SERVICES

Fiscal Years 1967-1996

(Millions of Dollars)

Year	TOTAL	Department of Defense ^a			NASA ^b
		TOTAL	Aircraft	Missiles	
1967	\$15,478	\$10,341	\$ 8,411	\$ 1,930	\$ 5,137
1968	16,279	11,681	9,462	2,219	4,598
1969	15,872	11,686	9,177	2,509	4,186
1970	14,559	10,860	7,948	2,912	3,699
1971	12,918	9,580	6,549	3,031	3,338
1972	12,309	8,936	5,927	3,009	3,373
1973	11,360	8,089	5,066	3,023	3,271
1974	11,168	7,987	5,006	2,981	3,181
1975	11,554	8,373	5,484	2,889	3,181
1976	12,364	8,816	6,520	2,296	3,548
Tr. Qtr.	2,885	1,959	1,557	402	926
1977	13,229	9,389	6,608	2,781	3,840
1978	13,926	10,067	6,971	3,096	3,859
1979	16,686	12,622	8,836	3,786	4,064
1980	20,269	15,558	11,124	4,434	4,711
1981	24,276	19,002	13,193	5,809	5,274
1982	29,501	23,575	16,793	6,782	5,926
1983	35,364	28,808	21,013	7,795	6,556
1984	39,663	32,723	23,196	9,527	6,940
1985	44,483	37,335	26,586	10,749	7,148
1986	49,773	42,558	30,828	11,730	7,215
1987	51,871	44,429	32,956	11,473 ^c	7,442
1988	48,848	39,922	28,246	11,676	8,926
1989	52,933	42,072	27,569	14,503	10,861
1990	53,194	40,992	26,142	14,851	12,202
1991	53,630	40,089	25,689	14,400	13,541
1992	50,569	37,085	23,581	13,504	13,484
1993	45,496	31,763	20,359	11,404	13,733
1994	41,082	27,774	18,840	8,934	13,308
1995 ^E	38,009	24,321	16,249	8,072	13,688
1996 ^E	35,544	21,579	14,544	7,035	13,965

Source: Department of Defense, "Status of Funds" (Annual Summaries); Office of Management and Budget, "The Budget of the United States Government" (Annually); and NASA, "Pocket Statistics" (Annually).

a Outlays for aircraft and missile procurement. Does not include RDT&E, which DoD has not reported by product group since 1977, and which for comparability, has been subtracted from data previously reported in this table for earlier years.

b Includes Research & Development and Research & Program Management, and effective with 1984 data, Space Flight, Control, and Data Communications; excludes Construction of Facilities.

c Beginning in 1978, DoD combined Navy Missile Procurement with torpedoes and other related products into Navy Weapons Procurement, of which missiles comprise approximately 80 percent.

E Estimate. Latest year reflects Administration's budget proposal.

Tr. Qtr. See Glossary.

AEROSPACE FACTS AND FIGURES 1995/1996

DEPARTMENT OF DEFENSE TOTAL MILITARY OUTLAYS BY FUNCTIONAL TITLE^a

Fiscal Years 1987–1996
(Millions of Dollars)

	1987	1988	1989	1990
TOTAL	\$273,966	\$281,935	\$294,880	\$289,755
Procurement—TOTAL	<u>\$ 80,744</u>	<u>\$ 77,166</u>	<u>\$ 81,620</u>	<u>\$ 80,972</u>
Aircraft	32,956	28,246	27,569	26,142
Missiles ^b	11,473	11,676	14,503	14,851
Ships	9,316	8,878	10,587	11,016
Weapons ^b	4,962	4,727	4,384	3,873
Ammunition	2,111	2,250	1,993	2,003
Other ^c	19,926	21,389	22,585	23,088
Military Personnel—TOTAL	<u>72,020</u>	<u>76,337</u>	<u>80,676</u>	<u>75,622</u>
Active Forces	63,810	67,642	71,571	66,541
Reserve Forces	8,210	8,694	9,104	9,081
RDT&E	33,596	34,792	37,002	37,458
Operations & Maintenance	76,205	84,475	87,001	88,340
Military Construction	5,853	5,874	5,275	5,080
Family Housing	2,908	3,082	3,257	3,501
Other ^d	2,640	210	50	(1,218)

Source: Department of Defense, "Status of Funds" (Annual Summaries) and Office of Management and Budget, "The Budget of the United States Government" (Annually).

NOTE: Data in parentheses are credit items. Detail may not add to totals because of rounding.

a Includes all items in the DoD military budget; excludes the DoD civil budget for the Army Corps of Engineers and other non-defense related activities.

b Beginning in 1978, DoD combined Navy Missiles Procurement with torpedoes and other related products into Navy Weapons Procurement. Missiles comprise approximately 80 percent of the value of this category.

c Includes Communications and Electronics.

d 1991–1993 reflects transfers from the Defense Cooperation Account funded by foreign government and private contributions reducing total U.S.-funded military outlays.

e Estimate. Latest year reflects Administration's budget proposal.

r Revised.

AEROSPACE SUMMARY

DEPARTMENT OF DEFENSE
TOTAL MILITARY OUTLAYS BY FUNCTIONAL TITLE^a (Continued)
Fiscal Years 1987–1996
(Millions of Dollars)

1991	1992	1993	1994	1995 ^E	1996 ^E
\$262,389 ^d	\$286,892 ^{dr}	\$278,561 ^d	\$268,611	\$260,155	\$249,978
<u>\$ 82,028</u>	<u>\$ 74,881</u>	<u>\$ 69,936</u>	<u>\$ 61,758</u>	<u>\$ 54,671</u>	<u>\$ 48,630</u>
25,689	23,581	20,359	18,840	16,249	14,544
14,400	13,504	11,404	8,934	8,072	7,035
11,512	11,035	10,136	9,132	8,094	7,296
3,716	3,324	3,061	1,795	1,792	1,668
2,103	1,996	1,383	997	1,451	1,129
24,609	21,442	23,593	22,061	19,011	16,958
<u>83,439</u>	<u>81,171</u>	<u>75,904</u>	<u>73,137</u>	<u>70,750</u>	<u>66,182</u>
74,571	71,433	66,494	63,686	61,511	57,207
8,868	9,738	9,410	9,449	9,240	8,975
34,589	34,632	36,968	34,762	34,981	34,476
101,769	91,984	94,094	87,880	90,129	91,452
3,497	4,262	4,831	4,979	5,621	5,664
3,296	3,271	3,255	3,316	3,457	3,924
(46,229) ^d	(3,308) ^d	(6,428) ^d	2,779	547	(354)

AEROSPACE FACTS AND FIGURES 1995/1996

**FEDERAL PRICE DEFLATORS FOR GDP, DEFENSE, PPI, AND CPI
(1965-1996)**

Year	GDP		Federal Government Defense Purchases		PPI, Capital Equip- ment	CPI, (Urban) All items
	FY GDP	CY GDP	Durable Goods	Goods & Services		
	(FY 1987 =100)	(CY 1987 =100)	(CY 1987 =100)	(CY 1987 =100)	(CY 1982 =100)	(CY 82-84 =100)
1965	28.27	28.4	NA	NA	33.8	31.5
1966	29.07	29.4	NA	NA	34.6	32.4
1967	30.06	30.3	NA	NA	35.8	33.4
1968	31.20	31.8	NA	NA	37.0	34.8
1969	32.79	33.4	NA	NA	38.3	36.7
1970	34.57	35.2	NA	NA	40.1	38.8
1971	36.34	37.1	NA	NA	41.7	40.5
1972	38.23	38.8	38.8	36.9	42.8	41.8
1973	40.22	41.3	41.8	40.5	44.2	44.4
1974	43.27	44.9	44.3	44.5	50.5	49.3
1975	47.58	49.2	47.1	48.5	58.2	53.8
1976	51.22	52.3	51.7	51.9	62.1	56.9
1977	55.38	55.9	55.5	55.6	66.1	60.6
1978	59.57	60.3	60.4	59.8	71.3	65.2
1979	64.74	65.5	67.7	65.8	77.5	72.6
1980	70.58	71.7	72.6	73.5	85.8	82.4
1981	77.76	78.9	82.0	81.1	94.6	90.9
1982	83.55	83.8	92.1	87.6	100.0	96.5
1983	87.02	87.2	98.4	91.6	102.8	99.6
1984	90.85	91.0	102.3	94.8	105.2	103.9
1985	94.32	94.4	103.0	97.3	107.5	107.6
1986	97.12	96.9	103.9	98.6	109.7	109.6
1987	100.00	100.0	100.0	100.0	111.7	113.6
1988	103.63	103.9	101.2	103.0	114.3	118.3
1989	108.23	108.5	103.0	106.6	118.8	124.0
1990	112.00	113.3	104.6	110.7	122.9	130.7
1991	116.70 ^r	117.6 ^r	106.9	114.7	126.7	136.2
1992	120.10 ^r	120.9 ^r	107.9	120.2 ^r	129.1	140.3
1993	123.00 ^r	123.5 ^r	110.9	124.2 ^r	131.4	144.5
1994	125.40	126.2	111.7	128.9	134.1	148.3
1995 ^E	128.80	129.7	NA	NA	NA	152.9
1996 ^E	132.60	133.5	NA	NA	NA	157.8

Source: Bureau of Economic Analysis, "Current Business Statistics" (Monthly) and Price Measurement Branch; Council of Economic Advisers, "Economic Report of the President" (Annually); and Office of Management and Budget, "The Budget of the United States Government" (Annually).

^E Estimate.

NA Not Available.

^r Revised.

Key: PPI = Producer Price Index for Capital Equipment.

CPI = Consumer Price Index, All Items, All Urban Consumers for 1978 and subsequent years. Previous years, All Urban Wage Earners.

GDP= Gross Domestic Product.

AEROSPACE SUMMARY

PRICE DEFLATORS FOR AEROSPACE INDUSTRY

Calendar Years 1972-1994

Year	Aerospace Deflators (1987 = 100)					
	Composite	SIC 3721	SIC 3724	SIC 3728	SIC 3761	SIC 3764,9
1972	33.7	39.9	30.1	36.6	39.7	34.4
1973	37.7	41.2	30.9	38.1	39.4	35.6
1974	41.5	44.8	34.9	44.0	41.6	40.5
1975	46.6	48.3	42.3	51.6	45.2	49.2
1976	51.0	52.8	45.9	56.5	50.4	53.8
1977	54.6	56.2	49.1	58.7	55.6	58.2
1978	57.5	59.3	54.6	55.2	60.7	63.6
1979	63.5	65.3	60.9	58.9	69.7	70.0
1980	70.6	72.9	66.3	65.3	78.9	78.5
1981	79.5	80.8	77.0	74.9	87.1	89.5
1982	87.9	89.8	85.2	84.3	93.4	97.2
1983	92.2	94.4	89.5	87.9	98.6	101.5
1984	99.8	105.9	98.1	93.6	100.7	102.9
1985 ^a	98.7	100.7	99.2	94.4	102.4	103.2
1986	99.8	100.6	99.3	97.9	103.5	102.4
1987	100.0	100.0	100.0	100.0	100.0	100.0
1988	101.9	102.2	103.0	103.5	95.0	100.3
1989	106.1	111.0	105.8	106.8	91.4	100.6
1990	110.5	116.8	111.7	109.8	91.5	98.1
1991	114.6	121.3	117.0	113.6	94.4	94.6
1992	117.4	125.2	122.7	118.0	93.1	83.5
1993	120.8	129.5	124.7	120.9	84.6	89.7
1994	122.3	133.9	128.0	123.5	85.7	89.6

Source: Aerospace Industries Association, based on data from: Bureau of Labor Statistics, Producer Price Indices; Bureau of Economic Analysis, Implicit Price Deflators; and International Trade Administration.

a The Commerce Department has discontinued its reporting of the Aerospace Deflators with 1986. Subsequent composite deflators computed by AIA and deflators for 1985 and 1986 revised for consistency.

Key: SIC = Standard Industrial Classification, SIC 3721 = Aircraft; SIC 3724 = Aircraft Engines and Engine Parts; SIC 3728 = Aircraft Parts; SIC 3761 = Missiles and Space Vehicles; SIC 3764 = Space Propulsion; SIC 3769 = Space Equipment not elsewhere classified.

Aircraft Production

Sales of aircraft, engines, and parts, generally the largest single component of the aerospace industry's overall sales volume, continued their downward slide in 1994 despite an enormous increase in military sales.

According to data supplied by the Bureau of the Census, total sales of aircraft, engines, and parts amounted to \$51 billion, down from \$56.4 billion in 1993. The rate of decline, however, was substantially softer: 10 percent in 1994, compared with almost 17 percent in the previous year.

Sales of military aircraft, engines, and parts increased for the first time since 1990, from \$15.4 billion in 1993 to \$20.4 billion in 1994. Commercial aircraft, engines, and parts sales, however, experienced a precipitous decline, a 25 percent drop from 1993's \$41 billion to \$30.6 billion in 1994. The decline was the second in a row after eight consecutive years of increase. These figures differ from AIA estimates (\$32.1 billion military, \$26 billion civil) in that the AIA data includes aircraft-related Research, Development, Test, and Evaluation (RDT&E) outlays and excludes civilian maintenance, modification, and conversion work.

Census' figures on net new orders in 1994 offered some opti-

mism for the near future as orders increased in both the military and non-military areas to a grand total of \$42.1 billion, up from \$31.1 billion in 1993. Orders for military aircraft, engines, and parts amounted to \$22.6 billion, up from \$15 billion in the previous year. Non-military orders totaled \$19.5 billion, up from \$16.1 billion.

The backlog of orders for aircraft, engines, and parts once again fell off sharply, after a very sharp decline in 1993 and a three percent drop in 1992. Total backlog reported by Census was \$120.7 billion, down from \$133 billion in 1993 and down by \$53 billion (31 percent) from the



all-time peak of 1991. Orders for non-military (commercial) equipment represented 70 percent of the total; at \$84.6 billion, the commercial backlog was down 12 percent below the prior year's \$96.2 billion. The military backlog declined slightly from \$36.7 billion to \$36.1 billion.

AIA data shows that commercial transport manufacture accounted for \$18.1 billion, or 88 percent, of the \$20.7 billion value of 1994's civil aircraft shipments. The industry built 309 transports, roughly 100 fewer than in 1993 and the lowest number produced since 1985. Almost three-quarters of the transport production (222 planes) represented export shipments.

Overall, the industry produced 1,545 civil aircraft, including 928 general aviation planes and 308 helicopters. General aviation shipments included 543 units delivered to domestic customers and 385 exported. The value of general aviation sales was \$2.4 billion, up 10 percent from 1993's \$2.1 billion and the highest value recorded since 1981.

Civil helicopter production was up both numerically and in dollar value over the previous year. In 1994, the industry produced 308 helicopters worth \$185 million; the comparable numbers for 1993 were 258 units valued at \$113 million. Deliv-

eries of helicopters were split evenly between domestic and foreign customers.



AEROSPACE FACTS AND FIGURES 1995/1996

SALES OF AIRCRAFT, ENGINES, AND PARTS

Calendar Years 1980-1994
(Millions of Dollars)

Year	GRAND TOTAL	TOTAL		Complete Aircraft & Parts		Aircraft Engines & Parts	
		Mili- tary	Non- Mil.	Mili- tary	Non- Mil.	Mili- tary	Non- Mil.
CURRENT DOLLARS							
1980	\$29,524	\$10,963	\$18,561	\$ 8,260	\$14,365	\$2,703	\$ 4,196
1981	33,574	14,575	18,999	10,725	14,349	3,850	4,650
1982	31,886	17,743	14,143	13,541	9,678	4,202	4,465
1983	35,879	19,809	16,070	15,651	11,666	4,158	4,404
1984	37,285	23,268	14,017	18,218	10,039	5,050	3,978
1985	43,940	25,758	18,182	21,642	12,607	4,116	5,575
1986	47,757	27,043	20,714	23,089	14,876	3,954	5,838
1987	49,062	27,806	21,256	22,168	14,862	5,638	6,394
1988	50,742	25,068	25,674	19,030	16,681	6,038	8,993
1989	53,825	24,287	29,538	18,256	20,140	6,031	9,398
1990	66,289	27,667	38,622	22,023	27,872	5,644	10,750
1991	68,540	25,385	43,155	19,710	33,215	5,675	9,940
1992	67,669	23,509	44,160	18,411	35,595	5,098	8,565
1993 ^r	56,389	15,374	41,015	11,394	32,809	3,980	8,206
1994	51,018	20,400	30,618	17,087	23,088	3,313	7,530
CONSTANT DOLLARS ^a							
1980	\$41,819	\$15,528	\$26,290	\$11,700	\$20,347	\$3,829	\$ 5,943
1981	42,231	18,333	23,898	13,491	18,049	4,843	5,849
1982	36,275	20,185	16,090	15,405	11,010	4,780	5,080
1983	38,914	21,485	17,430	16,975	12,653	4,510	4,777
1984	37,360	23,315	14,045	18,255	10,059	5,060	3,986
1985	44,519	26,097	18,421	21,927	12,773	4,170	5,648
1986	47,853	27,097	20,756	23,135	14,906	3,962	5,850
1987	49,062	27,806	21,256	22,168	14,862	5,638	6,394
1988	49,796	24,601	25,195	18,675	16,370	5,925	8,825
1989	50,730	22,891	27,840	17,206	18,982	5,684	8,858
1990	59,990	25,038	34,952	19,930	25,224	5,108	9,729
1991	59,808	22,151	37,657	17,199	28,983	4,952	8,674
1992	57,640	20,025	37,615	15,682	30,319	4,342	7,296
1993 ^r	46,680	12,727	33,953	9,432	27,160	3,295	6,793
1994	41,715	16,680	25,035	13,971	18,878	2,709	6,157

Source: Bureau of the Census, "Aerospace Industry (Orders, Sales, and Backlog)" Series MA37D (Annually).

Note: The detail necessary to report orders, sales, and backlog by customer (ie U.S. Gov't vs Other) has been withheld by the Census Bureau. Consequently, this table has been recomputed showing orders, sales, and backlog by application (ie Military vs Non-Military).

^a Based on AIA's aerospace composite price deflator, 1987=100.^r Revised.

AIRCRAFT PRODUCTION

ORDERS AND BACKLOG OF AIRCRAFT, ENGINES, AND PARTS

Calendar Years 1980-1994
(Millions of Current Dollars)

Year	GRAND TOTAL	TOTAL		Complete Aircraft & Parts		Aircraft Engines & Parts	
		Mili- tary	Non- Mil.	Mili- tary	Non- Mil.	Mili- tary	Non- Mil.
NET NEW ORDERS							
1980	\$ 34,345 ^r	\$15,208	\$ 19,137	\$11,512	\$ 14,188	\$3,696	\$ 4,949
1981	34,436 ^r	19,228	15,208	14,042	9,918	5,186	5,290
1982	33,775 ^r	24,186	9,589	19,632	6,523	4,554	3,066
1983	33,599	26,231	12,368	21,494	7,596	4,737	4,772
1984	47,102	29,894	17,208	23,312	14,064	6,582	3,144
1985	49,942	28,201	21,741	24,526	15,689	3,675	6,052
1986	47,957	24,124	23,833	19,852	17,592	4,272	6,241
1987	52,347	19,347	33,000	15,070	24,083	4,277	8,917
1988	82,148	24,242	57,906	17,493	41,762	6,749	16,144
1989	96,591	28,818	67,773	23,569	52,619	5,249	15,154
1990	82,386	17,735	64,651	12,766	52,371	4,969	12,280
1991	67,490	26,675	40,815	22,140	30,745	4,535	10,070
1992	49,741	19,631	30,110	16,391	20,548	3,240	9,562
1993	31,108 ^r	15,023	16,085	11,358	11,233	3,665	4,852
1994	42,078	22,628	19,450	19,150	12,834	3,478	6,616
BACKLOG AS OF DECEMBER 31							
1980	\$ 56,637 ^r	\$23,472	\$ 33,165	\$18,739	\$ 26,623	\$4,733	\$ 6,542
1981	55,912 ^r	26,867	29,045	21,201	21,706	5,666	7,339
1982	58,154 ^r	33,309	24,845	27,291	18,905	6,018	5,940
1983	60,372	38,824	21,548	32,227	15,241	6,597	6,307
1984	70,189	45,450	24,739	37,321	19,266	8,129	5,473
1985	76,191	47,893	28,298	40,205	22,348	7,688	5,950
1986	76,391	44,974	31,417	36,968	25,064	8,006	6,353
1987	80,015	36,514	43,501	29,869	34,625	6,645	8,876
1988	111,280	35,515	75,765	28,186	59,679	7,329	16,086
1989	159,150	44,026	115,124	36,888	95,108	7,138	20,016
1990	172,940	33,788	139,152	27,259	119,123	6,529	20,029
1991	173,676	39,149	134,527	32,795	116,139	6,354	18,388
1992	168,577	44,255	124,322	39,748	107,686	4,507	16,636
1993	132,950 ^r	36,725	96,225	32,280	82,770	4,445	13,455
1994	120,694	36,090	84,604	31,959	72,264	4,131	12,340

Source: Bureau of the Census, "Aerospace Industry (Orders, Sales, and Backlog)" Series MA37D (Annually).

Note: The detail necessary to report orders, sales, and backlog by customer (ie U.S. Gov't vs Other) has been withheld by the Census Bureau. Consequently, this table has been recomputed showing orders, sales, and backlog by application (ie Military vs Non-military).

r Revised.

AEROSPACE FACTS AND FIGURES 1995/1996

U.S. AIRCRAFT PRODUCTION—CIVIL
Calendar Years 1969–1994

Year	TOTAL	Domestic Shipments			Export Shipments		
		Trans-ports	Heli-copters	General Aviation	Trans-ports	Heli-copters	General Aviation
1969	13,505	332	282	9,996	182	252	2,461
1970	8,076	127	150	5,246	184	332	2,037
1971	8,158	50	171	5,900	173	298	1,566
1972	10,576	79	319	7,702	148	256	2,072
1973	14,709	143	342	10,482	151	428	3,163
1974	15,326	91	433	9,903	241	395	4,263
1975	15,251	127	528	10,804	188	336	3,268
1976	16,429	64 ^a	442	12,232	158	315	3,218
1977	17,913	54	527	13,441	101	321	3,469
1978	18,962	130	536	14,346	111	368	3,471
1979	18,460	176	570	13,177	200	459	3,878
1980	13,634	150	841	8,703	237	525	3,178
1981	10,916	132	619	6,840	255	453	2,617
1982	5,085	111	333	3,326	121	254	940
1983	3,356	133	187	2,172	129	216	519
1984	2,999	102	143	2,013	83	233	425
1985	2,691	126	247	1,545	152	137	484
1986	2,156	171	120	1,031	159	210	464
1987	1,800	187	116	598	170	242	487
1988	1,949	206	103	500	217	280	643
1989	2,448	138	221	225	260	294	1,310
1990	2,268	215	254	335	306	349	809
1991	2,181	204	253	487	385	318	534
1992	1,790	180	112	541	387	212	358
1993	1,630	130	83	631	278	175	333
1994	1,545	87	154	543	222	154	385

Source: Aerospace Industries Association, based on company reports; General Aviation Manufacturers Association; and Department of Commerce, International Trade Administration.

a Prior to 1976, includes the C-130 military transport.

AIRCRAFT PRODUCTION

U.S. AIRCRAFT PRODUCTION—MILITARY

Calendar Years 1969–1994

Year	TOTAL	U.S. Military Agencies	Exports		
			Total	FMS ^a	Direct ^b
1969	4,290	3,644	646	NA	NA
1970	3,720	3,085	635	NA	NA
1971	2,914	2,232	682	NA	NA
1972	2,530	1,993	537	124	413
1973	1,821	1,243	578	129	449
1974	1,513	799	714	365	349
1975	1,779	844	935	525	410
1976	1,318	625	693	518	175
1977	1,134	454	680	408	272
1978	996	467	529	256	273
1979	837	531	306	203	103
1980	1,047	625	422	194	228
1981	1,062	703	359	215	144
1982	1,159	690	469	68	401
1983	1,053	766	287	70	217
1984	936	561	375	71	304
1985	919	643	276	134	142
1986	1,107	708	399	110	289
1987	1,210	725	485	133	352
1988	1,305	687	618	138	480
1989	1,261	614	647	92	555
1990	1,053	664	387	99	290
1991	911	556	355	94	261
1992	753	422	331	122	209
1993 ^r	955 ^c	437	518	146	372 ^c
1994	755	409	346	63	283

Source: Aerospace Industries Association, based on USAF, USN, and USA survey responses and Department of Commerce, International Trade Administration.

a Also includes acceptances of NATO AWACS aircraft.

b Military aircraft exported via commercial contracts, directly from manufacturers to foreign governments.

c The number of small (450 kg–2000 kg), new aircraft exported doubled in 1993 to 340 worth \$18 million.

NA Not available.

r Revised.

AEROSPACE FACTS AND FIGURES 1995/1996

CIVIL AIRCRAFT SHIPMENTS

Calendar Years 1980–1994

Year	TOTAL	Transport Aircraft ^a	Helicopters	General Aviation
NUMBER OF AIRCRAFT SHIPPED				
1980	13,634	387	1,366	11,881
1981	10,916	387	1,072	9,457
1982	5,085	232	587	4,266
1983	3,356	262	403	2,691 ^b
1984	2,999	185	376	2,438
1985	2,691	278	384	2,029
1986	2,155	330	330	1,495
1987	1,800	357	358	1,085
1988	1,949	423	383	1,143
1989	2,448	398	515	1,535
1990	2,268	521	603	1,144
1991	2,181	589	571	1,021
1992	1,790	567	324	899
1993	1,630	408	258	964
1994	1,545	309	308	928
VALUE—Millions of Dollars				
1980	\$13,058	\$ 9,895	\$656	\$2,507
1981	13,223	9,706	597	2,920
1982	8,610	6,246	365	1,999
1983	9,773	8,000	303	1,470 ^b
1984	7,717	5,689	330	1,698
1985	10,385	8,448	506	1,431
1986	11,858	10,308	288	1,262
1987	12,148	10,507	277	1,364
1988	15,855	13,603	334	1,918
1989	17,129	15,074	251	1,804
1990	24,477	22,215	254	2,008
1991	29,035	26,856	211	1,968
1992	30,728	28,750	142	1,836
1993	26,389	24,133	113	2,144
1994	20,666	18,124	185	2,357

Source: Aerospace Industries Association, based on company reports and General Aviation Manufacturers' Association.

^a U.S.-manufactured fixed-wing aircraft over 33,000 pounds empty weight, including all jet transports plus the four-engine turboprop-powered Lockheed L-100.

^b Includes 3 off-the-shelf Gulfstream G-III's delivered to the U.S. Air Force for C-20 VIP transports.

AIRCRAFT PRODUCTION

CIVIL TRANSPORT AIRCRAFT BACKLOG^a

As of December 31, 1990-1994

Company and Model	1990	1991	1992	1993	1994
TOTAL AIRCRAFT ON ORDER (Domestic and Foreign Orders)	2,138	1,829	1,493	1,356 ^r	1,126
Value (Millions of Dollars)	\$112,339	\$108,833	\$96,724	\$77,735	\$67,709
Boeing—TOTAL	<u>1,563</u>	<u>1,456</u>	<u>1,210</u>	<u>1,153^r</u>	<u>959</u>
B-737	754	615	488	463 ^r	391
B-747	250	234	214	156	111
B-757	333	333	241	246	182
B-767	192	188	145	141	128
B-777	34	86	122	147	147
McDonnell Douglas—TOTAL . .	<u>575</u>	<u>373</u>	<u>283</u>	<u>203</u>	<u>167</u>
MD-11	175	138	97	60	45
MD-80	400	235	186	143	48
MD-90	(b)	(b)	(b)	(b)	74
TOTAL FOREIGN ORDERS . . .	1,205	1,073	884	661	539
Value (Millions of Dollars) \$	71,213	72,733	\$66,795	\$50,409	\$42,962 ^E
Boeing—TOTAL	<u>872</u>	<u>844</u>	<u>687</u>	<u>511</u>	<u>415</u>
B-737	412	329	228	152	132
B-747	211	205	192	143	103
B-757	125	144	91	48	28
B-767	124	114	88	66	50
B-777	—	52	88	102	102
McDonnell Douglas—TOTAL . .	<u>333</u>	<u>229</u>	<u>197</u>	<u>150</u>	<u>124</u>
MD-11	131	101	76	56	39
MD-80	202	128	121	94	42
MD-90	(b)	(b)	(b)	(b)	43

Source: Aerospace Industries Association, based on company reports.

NOTE: Boeing's unfilled orders not reported on a firm order basis beginning with 1993.

a Unfilled firm orders excluding options for U.S.-manufactured transport aircraft over 33,000 pounds. Includes new transports contracted for lease from the manufacturer.

b Not separately reported. Combined with MD-80.

E Estimate.

AEROSPACE FACTS AND FIGURES 1995/1996

SHIPMENTS OF CIVIL TRANSPORT AIRCRAFT^a
Calendar Years 1990-1994

Company and Model	1990	1991	1992	1993	1994
TOTAL					
Number of Aircraft Shipped ...	521	589	567	408	309
Value (Millions of Dollars)	\$22,215	\$26,856	\$28,750	\$24,133	\$18,124
Boeing—TOTAL	<u>379</u>	<u>420</u>	<u>441</u>	<u>330</u>	<u>270</u>
B-737	174	214	218	152	121
B-747	68	64	61	56	40
B-757	77	80	99	71	69
B-767	60	62	63	51	40
McDonnell Douglas—TOTAL ..	<u>142</u>	<u>169</u>	<u>126</u>	<u>78</u>	<u>39</u>
MD-11	3	31	42	36	17
MD-80	139	138	84	42	22

Source: Aerospace Industries Association, based on company reports.

a U.S.-manufactured fixed-wing aircraft over 33,000 lbs.

AIRCRAFT PRODUCTION

SPECIFICATIONS OF U.S. CIVIL JET TRANSPORT AIRCRAFT^a

On Order or in Production as of 1994

Number of Engines and Crew, and Model Designation ^b	Initial Service	Standard Mixed Class	Operating Empty Weight (000's lbs)	Maximum Takeoff Gross Weight (000's lbs)	Range (Nautical Miles) ^c	Engine Manufacturer ^d and Model
FOUR ENGINES/CREW OF 2						
747-400*	1989	380-585	400-410	875	6,060 -7,200	GE CF6-80C2, P&W PW4056, or RR RB211-524
THREE ENGINES/CREW OF 2						
MD-11*	1989	298-410	288	625	6,920	GE CF6-80C2-DF1 or P&W PW4360
MD-11ER*	TBD	298-410	289	630	7,210	GE CF6-80C2-DF1 or P&W PW4360
TWO ENGINES/CREW OF 2						
737-300	1984	128-149	72-74	125-139	1,600 -2,500	CFMI CFM56-3-B1 or B2
737-400	1988	146-168	76-78	139-150	2,000 -2,500	CFMI CFM56-3-B2 or CFM56-3C
737-500	1990	108-132	70-71	116-134	1,500 -2,800	CFMI CFM56-3-B1 or CFM56-3C-1
757	1983	194-231	126	220-255	3,900	RR RB211-535 or P&W PW2000
767-200*	1982	174-285	184-188	395	6,600	P&W PW4000 or GE CF6-80C2
767-300*	1986	218	198-202	412	6,160	P&W PW4000, GE CF6-80C2, or RR RB211-524
777*	1995	305-440	295-320	506-633	3,960 -7,245	RR Trent, GE GE90, or P&W PW4000
MD-80 series:						
MD-81	1980	155	80	142	1,584	P&W JT8D-209 or P&W JT8D-217A
MD-82	1981	155	80	149	2,076	P&W JT8D-217C
MD-83	1985	155	81	160	2,534	P&W JT8D-219
MD-87	1987	130	76	140	2,405	P&W JT8D-217C
MD-88	1987	155	82	160	2,534	P&W JT8D-219C or P&W JT8D-217C
MD-90	1995	155	88	156	2,296	IAE V2500-D5

Source: Aerospace Industries Association, based on company reports.

^a All jet-powered passenger transport aircraft 33,000 pounds or more empty weight.

^b The Boeing Company manufacturers models: 737, 747, 757, 767, & 777 and McDonnell Douglas Corporation manufacturers models: MD-11, MD-80, and MD-90.

^c Full passenger load and baggage.

^d P&W = Pratt & Whitney; GE = General Electric; RR = Rolls-Royce; CFMI = General Electric/Snecma; IAE = International Aero Engines.

TBD To be decided.

* Wide-body aircraft.

AEROSPACE FACTS AND FIGURES 1995/1996

SPECIFICATIONS OF U.S. CIVIL HELICOPTERS
In Production as of 1994

Company	Commercial Model	Number of Places	Useful Load (Lbs.)	Range with Useful Load (N.Miles)	External Cargo Payload (Lbs.)
Enstrom Helicopter	F-28 Series	3	1,030	228	1,000
	280 Series	3	1,015	260	1,000
	480 Series	5	1,175	415	1,000
Kaman	K-1200	1	NA	NA	6,000
McDonnell Douglas Helicopter	500 Series	5	1,519	367	2,069
	520 Series	5	1,764	207	2,364
	530 Series	5	1,509	232	2,159
	900 Series	8	2,565	NA	3,000
Robinson Helicopter	R22	2	546	209	—
	R44	4	1,000	210	—
Schweizer Aircraft	300C	3	950	201	1,050
	330	4	1,110	269	1,000
Sikorsky Aircraft	S-76B	14	4,090	350	3,300
	S-76C	14	4,569	447	3,300

Source: Helicopter Association International, "1995 Helicopter Annual" (Annually).
NA Not available.

AIRCRAFT PRODUCTION

CIVIL HELICOPTER SHIPMENTS^a

Calendar Years 1990-1994

Company and Model	1990	1991	1992	1993	1994
CIVIL SHIPMENTS	603	571	324	258	308
Value (Millions of Dollars) ...	\$254	\$211	\$142	\$113	\$185
Bell—TOTAL	<u>16</u>	<u>4</u>	<u>1</u>	<u>2</u>	<u>—</u>
212	1	—	—	—	—
214 series	1	—	1	2	—
412	14	4	—	—	—
Enstrom—TOTAL	<u>27</u>	<u>17</u>	<u>6</u>	<u>10</u>	<u>17</u>
F-28 series	12	8	3	(b)	(b)
280 series	15	9	3	8 ^b	13 ^b
480 series	—	—	—	2	4
Kaman—TOTAL	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>5</u>
K-1200	—	—	—	—	5
McDonnell Douglas—TOTAL ..	<u>77</u>	<u>50</u>	<u>51</u>	<u>26</u>	<u>36</u>
500 series	65	42	23	5	3
520N series	—	3	17	21	9
530 series	12	5	11	—	22
900 series	—	—	—	—	2
Robinson—TOTAL	<u>384</u>	<u>402</u>	<u>212</u>	<u>166</u>	<u>195</u>
R22	384	402	212	135	89
R44	—	—	—	31	106
Rogerson—TOTAL	<u>—</u>	<u>2</u>	<u>3</u>	<u>—</u>	<u>—</u>
UH12E	—	2	3	—	—
Schweizer—TOTAL	<u>83</u>	<u>78</u>	<u>39</u>	<u>45</u>	<u>40</u>
300C	83	78	39	40	35
330	—	—	—	5	5
Sikorsky—TOTAL	<u>16</u>	<u>18</u>	<u>12</u>	<u>9</u>	<u>15</u>
S-76	16	18	12	9	15

Source: Aerospace Industries Association, based on company reports.

NOTE: All data exclude production by foreign licensees.

a Domestic and export helicopter shipments for non-military use. Helicopters in military configuration exported to foreign governments and purchased under commercial contract are reported elsewhere. Models which may be shipped in either a civil or a military configuration appear in both tables.

b Reporting of F-28 and 280 series combined.

AEROSPACE FACTS AND FIGURES 1995/1996

DIRECT EXPORT SHIPMENTS OF MILITARY HELICOPTERS^a
Calendar Years 1990–1994

Manufacturer and Model	1990	1991	1992	1993	1994
DIRECT MILITARY EXPORT SHIPMENTS	48	45	51	61	30
Value (Millions of Dollars)	\$337	\$489	\$460	\$429	\$248
Boeing Vertol CH-47/414/352 ...	11	9	6	—	—
Robinson R22	—	—	10	—	—
Sikorsky S-70C	35	36	24	60	29
Sikorsky S-76	—	—	—	1	—
Sikorsky S-80M	2	—	11	—	1

Source: Aerospace Industries Association, company reports.

^a Shipments of helicopters in military configuration exported directly from U.S. manufacturers to foreign governments. Military helicopters exported via Foreign Military Sales (FMS) are reported with Dept. of Defense (DoD) aircraft acceptance data elsewhere in this chapter. Some models reported on this page may be shipped in either military or civil configuration; see Civil Helicopter Shipments table for additional data.

AIRCRAFT PRODUCTION

GENERAL AVIATION AIRCRAFT SHIPMENTS

By Selected Manufacturers
Calendar Years 1990-1994

	1990	1991	1992	1993	1994
NUMBER OF AIRCRAFT SHIPPED	1,144	1,021	899	964	928
Single-Engine, Piston	608	564	510	516	444
Multi-Engine, Piston	87	49	41	39	55
Turboprop	281	222	177	211	207
Turbojet	168	186	171	198	222
VALUE OF SHIPMENTS^a (Millions of Dollars)	\$2,008	\$1,968	\$1,836	\$2,144	\$2,357
Single-Engine, Piston	\$ 68	\$ 93 ^b	\$ 92 ^b	\$ 76 ^b	\$ 94 ^b
Multi-Engine, Piston	24	(b)	(b)	(b)	(b)
Turboprop	644	527	460	595	595
Turbojet	1,272	1,348	1,284	1,473	1,681
Number of Aircraft By Selected Manufacturer					
American Champion	NA	NA	NA	38	22
American General	10	82	51	30	—
Aviat	NA	71	63	56	47
Bellanca	4	1	3	4	2
Cessna	171	176	140	173	172
Christen	68	—	—	—	—
Classic	8	8	9	7	4
Commander	NA	NA	25	31	22
Fairchild	14	10	14	20	16
Gulfstream	34	29	25	26	22
Lake	17	11	9	3	—
Learjet	25	25	23	38	36
Maule	28	66	33	70	65
Mooney	147	88	69	64	71
Piper	178	41	85	99	132
Raytheon ^c	433	402	348	305	317
Taylorcraft	7	11	2	—	—

Source: General Aviation Manufacturers' Association.

a Manufacturers' net billing price.

b "Multi-Engine, Piston" combined with "Single-Engine, Piston."

c Formerly reported as Beech.

NA Not available.

AEROSPACE FACTS AND FIGURES 1995/1996

MILITARY AIRCRAFT ACCEPTED BY U.S. MILITARY AGENCIES

Number and Flyaway Value
Calendar Years 1980–1994

Year	TOTAL	Bomber/ Patrol/ Command/ Control	Fighter/ Attack	Trans- port/ Tanker	Trainer	Heli- copter	Other
NUMBER							
1980	819	16	551	15	18	189	30
1981	918	19	649	17	60	158	15
1982	758	26	478	14	60	172	8
1983	836	34	421	22	120	233	6
1984	632	34	298	18	30	240	12
1985	777	34	409	25	—	306	3
1986	818	52	424	76	—	266	—
1987	858	74	483	36	—	265	—
1988	842	55	509	31	—	247	—
1989	706	24	408	21	—	253	—
1990	763	24	454	25	—	260	—
1991	650	17	395	23	—	215	—
1992	544	10	312	30	37	155	—
1993	583 ^r	11	293	25	56	198 ^r	—
1994	472	6	167	40	114	142	3
FLYAWAY VALUE—Millions of Dollars							
1980	\$ 6,514	\$ 475	\$5,282	\$ 178	\$ 32	\$ 516	\$31
1981	8,446	526	6,518	509	32	825	19
1982	8,605	886	6,383	410	42	872	12
1983	9,640	1,259	6,708	575	79	1,009	10
1984	9,308	1,270	5,774	627	18	1,597	22
1985	14,122	3,640	7,923	838	—	1,715	6
1986	20,903	8,177	8,004	2,665	—	2,057	—
1987	21,459	8,569	8,900	2,218	—	1,772	—
1988	16,031	2,911	8,953	2,314	—	1,853	—
1989	11,968	1,423	7,735	743	—	2,067	—
1990	13,036	1,499	8,731	605	—	2,201	—
1991	11,754	1,023	8,517	437	—	1,777	—
1992	11,482	613	7,673	1,346	267	1,583	—
1993 ^r	12,101	1,530	6,400	1,553	484	2,134	—
1994	13,096	3,861	3,941	3,298	468	1,511	17

Source: Aerospace Industries Association, based on USAF, USN, and USA survey responses.

NOTE: Data represent new U.S.-manufactured aircraft, excluding gliders and targets. Values include spares, spare parts, and support equipment that are procured with the aircraft. Includes aircraft accepted for shipment to foreign governments for military assistance programs and foreign military sales.

^r Revised.

AIRCRAFT PRODUCTION

MILITARY AIRCRAFT ACCEPTANCES BY UNITED STATES AIR FORCE^a

Calendar Years 1993–1994

(Costs in Millions of Dollars)

Type and Model	Number		Flyaway Cost ^b		Weapon System Cost ^c	
	1993	1994	1993	1994	1993	1994
AIR FORCE—TOTAL	187 ^r	138	\$5,094 ^r	\$8,379	NA ^r	NA
Bomber—TOTAL	1	4	\$ 977	\$3,628	\$ NA	\$ NA
B-2	1	4	977	3,628	NA	NA
Fighter/Attack—TOTAL	130	70	2,506 ^r	1,604	NA	NA
F-15	14	9	501	322	736	473
F-16	116	61	2,005 ^r	1,282	NA	NA
Transports/Tankers—TOTAL ..	21 ^r	29	1,472 ^r	3,016	1,899 ^r	3,636
C-17	5 ^r	7	1,322 ^r	2,332	1,710 ^r	2,836
C-26	7	—	24	—	24	—
C-27A	1	—	17	—	17	—
C-130 variants	8	22	109	684	148	800
Trainer—TOTAL	35	35	139 ^r	131	152 ^r	160
T-1A	35	35	139 ^r	131	152 ^r	160

Source: Department of the Air Force.

a Air Force acceptances for own use; excludes FMS/MAP shipments.

b Flyaway Cost includes airframe, engines, electronics, communications, armament, other installed equipment, and non-recurring costs associated with the manufacture of aircraft.

c Weapon system cost includes flyaway costs, peculiar ground equipment, training equipment, and technical data.

NA Not available.

r Revised.

MILITARY AIRCRAFT ACCEPTANCES BY UNITED STATES ARMY^a

Calendar Years 1993–1994

Type and Model	Number		Flyaway Cost ^b		Weapon System Cost ^c	
	1993	1994	1993	1994	1993	1994
ARMY—TOTAL	107	130	\$871	\$453	\$981	\$485
Helicopters—TOTAL	106	63	\$867	\$381	\$977	\$412
AH-64A	46	—	512	—	576	—
UH-60L	60	63	355	381	401	412
Transports/Tankers—TOTAL ..	1	1	4	4	4	4
C-26	1	1	4	4	4	4
Trainer—TOTAL	—	63	—	51	—	52
TH-67	—	63	—	51	—	52
Other—TOTAL	—	3	—	17	—	17
RC-12	—	3	—	17	—	17

Source: Department of the Army.

a Army acceptances for own use; excludes FMS/MAP shipments.

b Flyaway cost includes airframes, engines, electronics, communications, armament and other installed equipment.

c Weapon System Cost includes flyaway cost, initial spares, ground equipment, training equipment and other support items.

AEROSPACE FACTS AND FIGURES 1995/1996

MILITARY AIRCRAFT ACCEPTANCES BY UNITED STATES NAVY^a

Calendar Years 1993–1994
(Costs in Millions of Dollars)

Type and Model	Number		Flyaway Cost ^b		Weapon System Cost ^c	
	1993	1994	1993	1994	1993	1994
NAVY—TOTAL	143	141	\$3,636 ^r	\$3,339	\$4,935 ^r	\$4,720
Patrol—TOTAL	<u>6</u>	<u>2</u>	<u>\$ 337</u>	<u>\$ 233</u>	<u>\$ 463</u>	<u>\$ 333</u>
E-2C	6	2	337	233	463	333
Fighter/Attack—TOTAL	<u>75</u>	<u>63</u>	<u>2,230^r</u>	<u>1,738</u>	<u>2,906</u>	<u>2,677</u>
F-14	5	4	295 ^r	233	435	342
F/A-18	46	46	1,466	1,227	1,966	1,961
AV-8B	24	13	469	278	505	374
Transports/Tankers—TOTAL ..	<u>3^r</u>	<u>10</u>	<u>77^r</u>	<u>278</u>	<u>82^r</u>	<u>308</u>
C-20G	—	5	—	142	—	158
C-130T	1 ^r	3	25 ^r	75	28 ^r	84
KC-130	2	2	52	61	54	66
Trainers—TOTAL	<u>21</u>	<u>16</u>	<u>345^r</u>	<u>286</u>	<u>580^r</u>	<u>474</u>
T-45A	21	16	345 ^r	286	580 ^r	474
Helicopters—TOTAL	<u>38^r</u>	<u>50</u>	<u>647^r</u>	<u>804</u>	<u>904^r</u>	<u>928</u>
AH-1W	7	21	56	203	71	223
CH-53	11	4	241	90	282	96
MH-53	3 ^r	13	72 ^r	314	154 ^r	361
SH-60B	7	12	124	197	199 ^r	248
SH-60F	10	—	154	—	198	—

Source: Department of the Navy.

^a Navy acceptances for own use; excludes FMS shipments.^b Flyaway Cost includes airframe, engines, electronics, communications, armament, other installed equipment, non-recurring costs, and ancillary equipment.^c Weapons System Cost (Investment Cost) includes flyaway cost, initial spares, ground equipment, training equipment, and other support items.^r Revised.

AIRCRAFT PRODUCTION

MILITARY AIRCRAFT ACCEPTANCES FOR REIMBURSABLE PROGRAMS^a

Calendar Years 1993–1994
(Millions of Dollars)

Accepting Agency, Type, and Model	Number of Aircraft Accepted		Flyaway Cost ^b	
	1993	1994	1993	1994
TOTAL ACCEPTANCES FOR REIMBURSABLE PROGRAMS	146 ^r	63	\$2,500 ^r	\$925
AIR FORCE—TOTAL	74	34	\$1,413	\$599
Fighter Attack—TOTAL	<u>74</u>	<u>34</u>	<u>1,413</u>	<u>599</u>
F-16	74	34	1,413	599
NAVY—TOTAL	30 ^r	1	\$ 600 ^r	\$ 10
Patrol—TOTAL	<u>4</u>	<u>—</u>	<u>216</u>	<u>—</u>
E-2	4	—	216	—
Fighter/Attack—TOTAL	<u>14</u>	<u>—</u>	<u>251</u>	<u>—</u>
F/A-18	14	—	251	—
Helicopters—TOTAL	<u>12^r</u>	<u>1</u>	<u>133^r</u>	<u>10</u>
AH-1	12 ^r	1	133 ^r	10
ARMY—TOTAL	42 ^r	28	\$ 487 ^r	\$316
Helicopters—TOTAL	<u>42^r</u>	<u>28</u>	<u>487^r</u>	<u>316</u>
AH-64	42 ^r	26	487 ^r	301
UH-60	—	2	—	15

Source: Aerospace Industries Association, based on USAF, USN, and USA survey responses.

^a Foreign government aircraft purchases through the Department of Defense Foreign Military Sales program.

^b Flyaway cost includes airframes, engines, electronics, communications, armament, other installed equipment, and non-recurring costs associated with the manufacture of the aircraft.

E Estimate.

r Revised.

AEROSPACE FACTS AND FIGURES 1995/1996

MILITARY AIRCRAFT PROGRAM PROCUREMENTFiscal Years 1994, 1995, and 1996
(Millions of Dollars^a)

Agency and Model	1994		1995 ^E		1996 ^E	
	No.	Cost	No.	Cost	No.	Cost
AIR FORCE						
B-1B	—	\$ 165.8	—	\$ 138.3	—	\$ 56.3
B-2 Spirit	—	564.7	—	337.0	—	279.9
C-17 Globemaster III	6	2,086.3	6	2,342.0	8	2,402.5
C-130 Hercules	—	—	—	—	2	88.6
Civil Air Patrol Aircraft	27	3.6	14	1.4	27	2.6
E-8A JSTARS	2	555.2	2	654.7	2	491.8
Enhanced Flight Screener ..	33	9.9	—	—	—	—
F-15E Eagle	—	28.6	—	20.3	—	—
F-16 Falcon	12	449.3	—	75.0	—	—
JPATS ^b	—	—	3	92.7	3	55.0
Non-Development Airlift ...	—	98.0	—	—	—	183.8
T-1A Jayhawk	35	140.8	32	154.1	—	4.4
ARMY						
AH-64 Apache	10	\$ 167.6	—	\$ 156.5	—	\$ 358.1
C-21A	1	5.5	—	—	—	—
New Training Helicopter ...	35	29.3	—	0.5	—	0.5
OH-58D Kiowa Warrior ...	—	226.2	—	217.2	—	71.3
UH-60 Black Hawk	63	427.6	60	316.1	60	334.9
NAVY						
AH-1W Sea Cobra	12	\$ 139.2	12	\$ 140.7	—	\$ 10.4
AV-8B Harrier	4	136.6	4	130.3	4	169.7
CH/MH-53E Super Stallion ..	12	290.7	—	34.3	—	—
E-2C Hawkeye	—	37.8	4	282.4	3	214.2
EA-6B Prowler	—	77.6	—	—	—	—
F/A-18 Hornet	36	1,609.2	24	1,016.2	12	846.8
HH-60H	17	222.6	—	40.5	—	23.9
SH-60B Seahawk	7	215.7	—	—	—	13.7
SH-60F CV ASW	—	65.0	—	7.5	—	—
T-45 Goshawk	12	290.0	12	245.4	12	316.1
V-22 Osprey	—	—	—	—	—	48.0

Source: Department of Defense Budget, "Program Acquisition Costs by Weapon System" (Annually) and "Procurement Programs (P-1)" (Annually).

NOTE: See Research and Development Chapter for aircraft program RDT&E authorization data.

^a Total Obligational Authority for procurement, excluding initial spares.^b Navy and Air Force funding.^E Estimate. Latest year reflects Administration's budget proposal.

AIRCRAFT PRODUCTION

ACTIVE U.S. MILITARY AIRCRAFT^a IN CONTINENTAL U.S.

Fiscal Years 1980–1999

Year	Total ^a	Fixed-Wing Aircraft				Helicopters
		Total	Jet	Turboprop	Piston	
1980	18,969	11,362	8,794	1,869	699	7,607
1981	19,363	11,645	9,111	1,943	591	7,718
1982	21,728	12,063	9,647	1,900	516	9,665
1983	18,652	11,603	9,495	1,745	363	7,049
1984	18,833	11,661	9,551	1,777	333	7,172
1985	19,333	11,929	9,640	1,881	408	7,404
1986	20,157	11,919	9,730	1,803	386	8,238
1987	20,514	12,054	9,819	1,865	370	8,460
1988	21,010	12,481	9,954	2,222	305	8,529
1989	19,223	11,893	9,501	2,131	261	7,330
1990	20,017	12,817	10,360	2,199	258	7,200
1991	19,966	12,587	10,221	2,119	247	7,379
1992	19,210	11,936	9,672	2,035	229	7,274
1993	17,231	9,681	7,651	1,852	178	7,550
1994 ^E	17,018	9,803	7,786	1,835	182	7,215
1995 ^E	16,207	9,277	7,294	1,754	229	6,930
1996 ^E	15,425	9,114	7,111	1,733	270	6,311
1997 ^E	14,645	8,949	6,988	1,688	273	5,696
1998 ^E	14,309	8,858	6,918	1,668	272	5,451
1999 ^E	14,199	8,849	6,919	1,660	270	5,350

Source: Office of the Secretary of Defense, as reported in "FAA Aviation Forecasts" (Annually).

^a Includes Army, Air Force, Navy, and Marine regular service aircraft, as well as Reserve and National Guard Aircraft.

^E Estimate.

AEROSPACE FACTS AND FIGURES 1995/1996

**DEPARTMENT OF DEFENSE
OUTLAYS FOR AIRCRAFT PROCUREMENT**

By Agency
Fiscal Years 1962–1996
(Millions of Dollars)

Year	TOTAL AIRCRAFT PROCUREMENT	Air Force	Navy	Army
1962	\$ 6,659	\$ 4,387	\$ 2,102	\$ 170
1963	6,309	3,747	2,328	234
1964	6,053	3,894	1,859	300
1965	5,200	3,115	1,739	346
1966	6,635	4,074	2,021	540
1967	8,411	4,842	2,607	962
1968	9,462	5,079	3,244	1,139
1969	9,177	5,230	2,821	1,126
1970	7,948	4,623	2,488	837
1971	6,631	3,960	2,125	546
1972	5,927	3,191	2,347	389
1973	5,066	2,396	2,557	113
1974	5,006	2,078	2,806	122
1975	5,484	2,211	3,137	136
1976	6,520	3,323	3,061	136
Tr.Qtr.	1,557	859	672	26
1977	6,608	3,586	2,721	301
1978	6,971	3,989	2,602	380
1979	8,836	5,138	3,140	558
1980	11,124	6,647	3,689	787
1981	13,193	7,941	4,397	855
1982	16,793	9,624	5,872	1,297
1983	21,013	11,799	7,490	1,724
1984	23,196	12,992	8,040	2,165
1985	26,586	15,619	8,263	2,705
1986	30,828	18,919	8,922	2,987
1987	32,956	20,036	9,614	3,306
1988	28,246	15,961	9,407	2,878
1989	27,569	14,662	10,073	2,834
1990	26,142	14,303	9,031	2,808
1991	25,689	13,794	9,055	2,840
1992	23,581	13,154	7,907	2,520
1993	20,359	11,438	7,246	1,675
1994	18,840	10,303	6,826	1,711
1995 ^E	16,249	9,239	5,610	1,400
1996 ^E	14,544	8,379	4,964	1,201

Source: Office of Management and Budget, "Budget of the United States Government" (Annually).

NOTE: Detail may not add to totals because of rounding.

^E Estimate. Latest year reflects Administration's budget proposal.

Tr.Qtr. See Glossary.

AIRCRAFT PRODUCTION

SPECIFICATIONS OF U.S. MILITARY AIRCRAFT On Order or in Production as of 1994

Primary Mission, DoD Designation, & Popular Name	Manufacturer	U.S. Military Service	Crew	Empty Weight (000's lbs)	Engines	Performance Typical for Primary Mission	Remarks
ATTACK							
AV-8B Harrier II	MDC/BAe	USMC	1	13	1xRR F402	Mach 0.91	VTOL
BOMBERS							
B-2 Spirit	NGC	USAF	2	100-110	4xGE F118	6,000 n.m.	Radar eluding tactical bomber
FIGHTERS							
F-15E Eagle	MDC	USAF	2	37	2xP&W F100	Mach 2.5 class	Dual role fighter/long range interdiction
F-16A/B Fighting Falcon	LM	USAF	1-2	16	1xP&W F100	Mach 2+ class	Multirole fighter; fully fly-by-wire; missiles, guns.
F-16C/D Fighting Falcon	LM	USAF	1-2	18	1xP&W F100/ 1xGE F110	Mach 2+ class	Provisions for AMRAAM, LANTIRN, and new EW Nav. Comm. Systems
F/A-18C/D Hornet	MDC/NGC	USN/USMC	1-2	23	2xGE F404	Mach 1.7 class	Multi-mission night strike fighter
F/A-18E/F Hornet	MDC/NGC	USN/USMC	1-2	31	2xGE F414	Mach 1.8 class	Multi-mission night strike fighter
F-22A/B	LM/Boeing	USAF	1-2	30	2xPW F119	Mach 2+ class	Air superiority with ground attack; B model is tandem-seat version
COMMAND/CONTROL AND PATROL							
E-2C Hawkeye	NGC	USN	5	40	2xAll T56	6 hr. mission duration	AEW command & control; active & passive detection
CARGO-TRANSPORT							
C-17A	MDC	USAF	3	267	4xP&W F117	Mach 0.77; 3,000 n.m.	102 troops or 172,000 lbs.
C-20F/G/H	Gulfstream	All	2	42-43	2xRR Tay	Mach. 0.80; 4,200 n.m.	Versions of Gulfstream IV
C-26B	Fairchild	USAF/Army	2	9	2xGA TPE 331	285 mph; 2,000 mi.	US version of SA227-DC Metro 23
C-27 Spartan	Chrysler	USAF	2	36	2xGE T64	288 mph; 1,500 n.m.	USAF version of Alenia G-222
C-29A	BAe	USAF	2-3	15	2xGA TFE 731	Mach 0.87; 2,870 n.m.	USAF version of BAe 125
C/H-130H Hercules	LM	USAF/USN	4	74-78	4xAll T56	370 mph; 3,450 mi.	64-92 troops or 39-41,000 lbs.
KC-130T	LM	USN/USMC	5-7	80	4xAll T56	9,200 gals.	Tanker
MC-130H Combat Talon II	LM	USAF	5	76	4xAll T56	370 mph; 3,450 mi.	Support requirements of SOF
V-22 Osprey	Bell/Boeing	USMC/SOF	3	32	2xAll T406	Max 316 mph; 2,100 n.m.	With internal fuel tanks, engines tilt for VTOL
TRAINING							
T-1A Jayhawk	Beech	USAF	3	10	2xP&W JT-15D	Max 538 mph	Tanker/transport trainer
T-45A Goshawk	MDC/BAe	USN	2	9	1xRR F405	Mach 1.04 at 25,000 ft.	Next generation trainer
TH-67 Creek	Bell	Army	1	2	1xAll 250	Max 135 mph; 405 mi.	Rotary wing trainer
HELICOPTERS							
AH-1W Super Cobra	Bell	USN	2	10	2xGE T700	Max 218 mph; 395 mi.	TOW, hellfire, sidewinder
AH-64 Apache	MDC	Army	2	11	2xGE T700	Max 197 mph; 445 mi.	Attack helicopter
CH/MH-53E	Sikorsky	USN	3-8	33-36	3xGE T64	Max 196 mph; 710 mi.	55 passengers, aux. tanks/ minesweeping
HH-60H	Sikorsky	USN	4-12	14	2xGE T700	Max 184 mph; 500 mi.	Combat strike and rescue
MH-60G Pave Hawk	Sikorsky	USAF/Army	3	12	2xGE T700	Max 184 mph; 1,380 mi.	11 troops; combat; search; rescue
OH-580 Kiowa Warrior	Bell	Army	2	3	1xAll T703	Max 127 mph; 220 mi.	Armed attack/reconnaissance
SH-2G Super Sea-Sprite	Kaman	USN	3-4	8	2xGE T700	Max 159 mph; 500 mi.	LAMPS Mk.1 helicopter
SH-60B Seahawk	Sikorsky	USN	3	15	2xGE T700	Max 171 mph; 640 mi.	ASW
SH-60F	Sikorsky	USN	4	14	2xGE T700	Max 177 mph; 789 mi.	ASW
UH-60 Black Hawk	Sikorsky	Army/USAF	3	11	2xGE T700	Max 184 mph; 373 mi.	UTTAS

Source: Aerospace Industries Association, based on company reports.

KEY: All = Allison Gas Turbine; BAe = British Aerospace; GA = Garrett Engine; GE = General Electric; LM = Lockheed Martin; MDC = McDonnell Douglas; NGC = Northrop Grumman; P&W = Pratt & Whitney; RR = Rolls Royce.

Missile Programs

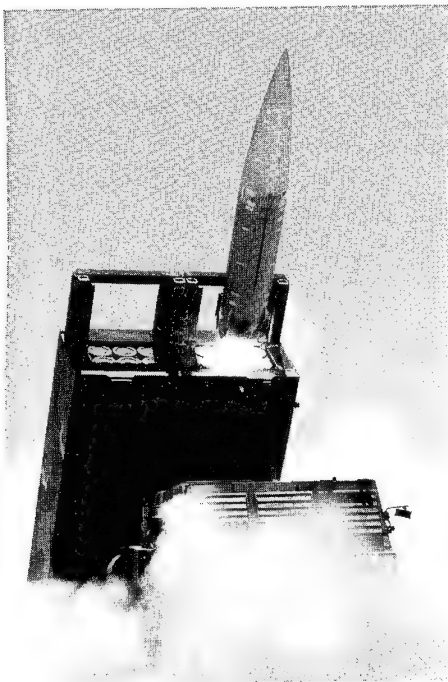
he downward trend in the industry's missile production activity, first evidenced in 1988, continued in 1994. In current dollar terms, sales of missile systems dropped to the lowest level since 1981. The flow of new orders fell below \$3 billion for the first time since 1978 and the industry's missile backlog dipped to its lowest point in 14 years.

Data compiled by the Bureau of the Census shows 1994 sales of missile systems and parts (excluding propulsion units) at \$5.3 billion, down more than 30 percent from the previous year's \$7.7 billion. Net new

orders amounted to only \$2.8 billion in 1994, which compares with \$4.8 billion in 1993. The backlog for missile systems at year-end 1994 was \$6 billion, down sharply—by more than 35 percent—from \$9.3 billion at the end of the previous year.

The downward trend is further evidenced in a summary of Department of Defense (DoD) outlays for missile procurement. In the decade of the 1980s, outlays rose steadily from \$4.4 billion in 1980 to \$14.5 billion at the end of the decade. In Fiscal Year (FY) 1990, total outlays reached an all-time peak of \$14.9 billion. Since then, outlays in each fiscal year have dropped below those of the prior year: FY 1991, \$14.4 billion; FY 1992, \$13.5 billion; FY 1993, \$11.4 billion; FY 1994, \$8.9 billion; and FY 1995, \$8.1 billion. The trend continues with planned outlays of \$7.0 billion in FY 1996. A breakdown allocates \$3.9 billion to the Air Force, \$2.2 billion to Navy, and \$0.9 billion to Army.

Where DoD was at one time funding several missile programs at more than \$1 billion a year, the greatest expenditure in FY 1995 was \$670 million for the Navy's Trident II Fleet Ballistic Missile. The largest Air Force program was the AMRAAM (Advanced Medium Range Air-to-Air Missile) at \$376 million. The Army's top procure-



ment program was the AAWS-M (Advanced Antitank Weapon System-Medium) at \$213 million. The Patriot long-range air defense missile program, jointly funded by the Army and the Ballistic Missile Defense Organization (BMDO), was allocated \$253 million.

Missile programs in production or in operational service during 1994/95 and planned for funding under FY 1996 appropriations included:

Air Force: AMRAAM, \$282 million; AGM-130 air-to-surface weapon, \$69 million.

Navy: Trident II, \$522 million,

the largest DoD missile procurement account for FY 1996; the Standard air defense missile, \$239 million; the Tomahawk cruise missile, \$168 million; the RAM (Rolling Airframe Missile), \$70 million; and the Harpoon cruise missile, \$46 million.

Army: The Hellfire helicopter-launched antiarmor missile, \$210 million; the AAWS-M, \$171 million; the ATACMS (Army TACTical Missile System), \$107 million; the Avenger mobile antiaircraft weapon system, \$31 million; and the TOW antitank missile, \$7 million.

BMDO: The Patriot air defense system, \$400 million.



AEROSPACE FACTS AND FIGURES 1995/1996

MISSILE PROGRAM PROCUREMENT

Fiscal Years 1994, 1995, and 1996

(Millions of Dollars^a)

Agency and Model	1994		1995 ^E		1996 ^E	
	No.	Cost	No.	Cost	No.	Cost
AIR FORCE						
AGM-130	102	\$ 70.4	102	\$ 68.8	—	\$ 69.3
AMRAAM ^b	1,082	523.5	519	376.3	406	281.5
HAVE NAP	—	5.0	36	25.8	—	—
NAVY						
Harpoon	75	\$ 86.0	58	\$ 68.2	30	\$ 46.4
JSOW	—	—	—	—	—	26.2
RAM	180	53.3	240	64.5	230	69.8
Standard	202	214.1	202	252.4	151	238.5
Tomahawk	216	257.5	217	243.9	164	167.7
Trident II	24	1,098.6	18	670.2	6	522.0
ARMY						
AAWS-M	703	\$ 207.3	872	\$212.6	557	\$171.4
ATACMS	255	145.6	148	115.0	91	107.0
Avenger ^c	144	135.2	—	13.7	—	31.4
Hellfire	3,348	150.6	1,245	132.7	352	209.5
MLRS	—	78.4	—	25.9	—	3.1
TOW 2 ^d	2,000	67.8	1,503	37.2	—	7.4
BMDO						
Patriot ^f	NA	NA	—	\$253.1	—	\$399.5

Source: Department of Defense, "Program Acquisition Costs by Weapon System" (Annually).

NOTE: See Research and Development Chapter for missile program RDT&E authorization data.

^a Total Obligational Authority excluding initial spares and RDT&E.

^b Navy and Air Force funding.

^c Army and Navy funding.

^d Army and Marine Corps funding.

^e Estimate. Latest year reflects Administration's budget proposal.

^f Army and BMDO funding.

NA Not available.

MISSILE PROGRAMS

DEPARTMENT OF DEFENSE OUTLAYS FOR MISSILE PROCUREMENT

By Agency
Fiscal Years 1962-1996
(Millions of Dollars)

Year	TOTAL MISSILE PROCUREMENT	Air Force	Navy	Army
1962	\$ 3,442	\$2,385	\$ 593	\$ 464
1963	3,817	2,676	718	423
1964	3,577	2,100	981	496
1965	2,096	1,320	522	254
1966	2,069	1,313	512	244
1967	1,930	1,278	432	220
1968	2,219	1,388	436	395
1969	2,509	1,382	534	593
1970	2,912	1,467	702	743
1971	3,140	1,497	791	852
1972	3,009	1,334	831	844
1973	3,023	1,454	628	941
1974	2,981	1,537	541	903
1975	2,889	1,602	615	672
1976	2,296	1,549	584	163
Tr.Qtr.	402	347	148	(93)
1977	2,781	1,501	905	374
1978	3,096 ^a	1,376	1,302 ^a	418
1979	3,786	1,537	1,702	547
1980	4,434	1,810	1,973	651
1981	5,809	2,366	2,297	1,146
1982	6,782	3,069	2,444	1,269
1983	7,795	3,383	2,812	1,600
1984	9,527	4,640	2,809	2,079
1985	10,749	5,409	2,941	2,399
1986	11,731	6,473	2,780	2,478
1987	11,473	6,002	3,157	2,314
1988	11,676	6,046	3,392	2,239
1989	14,503	7,349	4,445	2,709
1990	14,851	7,951	4,446	2,453
1991	14,400	6,906	4,954	2,540
1992	13,504	6,409	4,694	2,401
1993	11,404	5,424	3,794	2,187
1994	8,934	4,312	3,238	1,384
1995 ^E	8,072	4,267	2,641	1,164
1996 ^E	7,035	3,928	2,181	926

Source: Office of Management and Budget, "The Budget of the United States Government" (Annually).

NOTE: Detail may not add to totals because of rounding.

^a Beginning 1978, DoD combined Navy Missile Procurement with torpedoes and other related products into Navy Weapons Procurement. Missiles comprise approximately 80 percent of the value of this category.

^E Estimate. Latest year reflects Administration's budget proposal.

Tr.Qtr. See Glossary.

AEROSPACE FACTS AND FIGURES 1995/1996

MAJOR MISSILE PROGRAMS RESEARCH, DEVELOPMENT, PRODUCTION, OPERATION

Program	Agency	Status	Systems Contractor	Propulsion Manufacturer	Guidance Manufacturer
AIR-TO-AIR					
AMRAAM-120A	USAF/USN	D,P	Hughes/Ray	Alliant/ Aerojet	Hughes/Ray
Phoenix-54A	USN	O	Hughes/Ray	Alliant	Hughes
Phoenix-54C	USN	P,O	Hughes/Ray	Alliant	Hughes/Ray
Sidewinder-9J	USAF	O	Loral	Alliant/ Aerojet	Loral
Sidewinder-9L	USN/USAF	O	NASC	Bermite/TKC/ Alliant	Raytheon/ Loral
Sidewinder-9M	USN/USAF	O	NASC	TKC/Alliant	Ray/Loral
Sidewinder-9N	USAF	O	Loral	Alliant/ Aerojet	Loral
Sidewinder-9P	USAF	P,O	Loral	Alliant/ Aerojet	Loral
Sidewinder-9S	USN	P,O	NASC	TKC/Alliant	Loral/Ray
Sparrow-7F	USN/USAF	O	NASC	Alliant	Ray/Hughes
Sparrow-7M	USN/USAF	P	Ray/Hughes	Alliant	Ray/Hughes
Sparrow-7P	USN	D	NASC	Alliant	Raytheon
Sparrow-7R	USN	D	NASC	Alliant	Ray/Hughes
AIR-TO-SURFACE					
AGM-129	USAF	O	Hughes/MDC	WI	Kearfott
AGM-130A/B	USAF	D	RI	Alliant	RI
AGM-142	USAF	O	LM/Rafael	Rafael	GEC
AGM-86B/C	USAF	P,O	Boeing	WI	Honeywell/ Litton
GBU-15	USAF	P	RI	—	RI
HARM-88A/B	USN/USAF	P	TI	TKC/Alliant	TI
Harpoon-84A/C/D	USN	P,O	MDC	TCAE	TI/IBM/LSI/ Northrop
JDAM	USAF/USN	D	LM/MDC	—	Kearfott/Simmonds/ Honeywell
JSOW	USN	D	TI	—	Kearfott
Maverick-65A/B	USAF	O	Hughes	TKC/Aerojet	Hughes
Maverick-65D	USAF	O	Hughes/Ray	TKC/Aerojet	Hughes/Ray
Maverick-65E	USMC	O	Hughes	TKC/Aerojet	Hughes
Maverick-65F	USN	O	Hughes/Ray	TKC/Aerojet	Hughes/Ray
Shrike-45A/B	USN/USAF	O	NWC/PMTC	Aerojet/ Alliant	Texas Instruments
Sidarm 1-122A	USMC	O	Motorola	TKC/Alliant	Motorola
SLAM-84E	USN	P	MDC	TCAE	MDC/Hughes/RI/HI
SRAM-69A	USAF	O	Boeing	TKC/LM	Kearfott
Standard ARM-78D	USN/USAF	O	Hughes	NOSIH	Hughes

* Also Surface-to-Surface

(Continued on next page)

MISSILE PROGRAMS

MAJOR MISSILE PROGRAMS (Continued)

Program	Agency	Status	Systems Contractor	Propulsion Manufacturer	Guidance Manufacturer
AIR-TO-SURFACE (Cont'd.)					
Walleye 1-62	USN	O	LM	—	LM/Hughes
Walleye 1ER-62	USN	R,D	NAC	—	NAC
Walleye 2-62	USN	O	NAC	—	NAC
Walleye 2 (ER/DL)-62	USN	O	NAC	—	NAC
WCMD	USAF	D	Alliant/TI LM	—	Kearfott/Simmonds
ANTI-SUBMARINE					
VLA-44A	USN	P,O	Loral	TKC	Loral
SURFACE-TO-AIR					
Chaparral-72A	Army	O	Loral	Alliant/Bermite	GE/Raytheon
Chaparral-72C/E/H	Army	O	Loral	ARC/Alliant	Loral
Chaparral-72G/J	Army	P,O	Loral	Alliant	Hughes/Loral
PAC-3	Army	D	Loral	ARC	Loral/RI/Hi
Hawk-23B	Army	P,O	Raytheon	Aerojet	Raytheon
Patriot-104	Army	P	Raytheon	TKC	Raytheon
RAM-116A	USN	D	Hughes	TKC/Alliant	Hughes
Redeye-43A	Army/USMC	O	Hughes	ARC	Hughes
Roland-115	Army	O	Hughes/Boeing	Alliant	Hughes/Boeing
Sea Sparrow-7M	USN	P,O	Ray/Hughes	Alliant	Ray/Hughes
Standard 1 MR	USN	P,O	Hughes	Aerojet/NOSIH	Hughes/Hi
Standard 2 MR	USN	P,O	Hughes	ARC/Aerojet/TKC	Hughes/Hi
Standard 1 ER	USN	O	Hughes	ARC/NOSIH	Hughes/Hi
Standard 2 ER	USN	P,O	Hughes/Ray	ARC/NOSIH/TKC	Hughes/Ray/Hi
Stinger-92A	Army/USMC	P,O	Hughes/Ray	ARC	Hughes/Ray/Hi

(Continued on next page)

AEROSPACE FACTS AND FIGURES 1995/1996

MAJOR MISSILE PROGRAMS (Continued)

Program	Agency	Status	Systems Contractor	Propulsion Manufacturer	Guidance Manufacturer
SURFACE-TO-SURFACE					
*Harpoon-84A/C/D	USN	P,O	MDC	TCAE/TKC	TI/IBM/LSI NGC
Minuteman 2-30F	USAF	O	AFLC	TKC/Aerojet/ Alliant	Rockwell Autonetics
Minuteman 3-30G/P	USAF	O	AFLC	TKC/Aerojet	Rockwell Autonetics
Peacekeeper (MX)-118A	USAF	O	BMO	TKC/Avco/RI Aerojet/LM/ Alliant	RI/NGC/ Honeywell/ Litton
Tomahawk (SLCM)	USN	P	Hughes/MDC	WI/ARC/UTC	MDC/Hughes
Trident 1 (C-4)	USN	O	LM	Alliant/TKC	LM/Draper/ Ray/Hughes/ Kearfott
Trident 2 (D-5)	USN	P,O	LM	Alliant/TKC/ UTC	LM/Draper/ Ray/Hughes/ Kearfott/RI
BATTLEFIELD SUPPORT AND ANTIARMOR					
ATACMS	Army	P	Loral	ARC	—
Dragon-47	Army	P,O	MDC	MDC	MDC
HELLFIRE-114A/C/F	Army/USMC	P,O	RI/LM	Alliant/TKC	LM/RI
HELLFIRE II-114K	Army/USMC	P,O	LM	Alliant/TKC	—
Longbow	Army/USMC	D	LM/West	Alliant/TKC	LM/West
HELLFIRE 114L					
Javelin	Army/USMC	P	TI/LM	ARC	—
MLRS-26,-270	Army	P,O	Loral	ARC	—
Shillelagh-51C	Army	O	Loral	Alliant	Loral
SMAW	USMC	P,O	MDC	MDC	—
TOW-71A	Army	O	Hughes	Alliant	Emerson El.
ITOW-71C	Army	P,O	Hughes	Alliant	Emerson El.
TOW2-71D	Army	P,O	Hughes	Alliant/TKC	Emerson El./TI
TOW2A-71E	Army	P,O	Hughes	Alliant/TKC	Emerson El./TI
TOW2B-71F	Army	P	Hughes	Alliant	Emerson El./TI

Source: Aerospace Industries Association, based on company reports.

Status: R-Research; D-Development; P-Production; O-Operational.

* Also Air-to-Surface

Abb: AFLC —Air Force Logistics Cmd.	MDC —McDonnell Douglas	Ray —Raytheon
ARC —Atlantic Research	NAC —Naval Avionics Center	RI —Rockwell International
BMO —Ballistic Missile Office	NASC —Naval Air Systems Command	TCAE —Teledyne Ryan Aeronautical
GE —General Electric	NGC —Northrop Grumman	TI —Texas Instruments
GEC —General Electric Co PLC	NOSIH —Naval Ordnance Station, Indian Head	TKC —Thiokol
HI —Honeywell	NWC —Naval Weapons Center	UTC —United Technologies
LSI —Lear Siegler	PMTC —Pacific Missile Test Center	West —Westinghouse
LM —Lockheed Martin		WI —Williams International

MISSILE PROGRAMS

ORDERS, SALES, AND BACKLOG MISSILE SYSTEMS AND PARTS^a

Calendar Years 1977-1994
(Millions of Dollars)

Year	SALES—Current Dollars	SALES—Constant Dollars ^b
1977	\$ 3,118	\$ 5,711
1978	3,264 ^c	5,677
1979 ^d	3,706	5,836
1980	3,971	5,625
1981	4,662	5,864
1982	5,676	6,457
1983	5,991	6,498
1984	6,094	6,106
1985	7,975	8,080
1986	8,236	8,253
1987	9,671	9,671
1988	9,485	9,308
1989	9,283	8,749
1990	9,102	8,237
1991	8,989	7,844
1992	9,032	7,693
1993 ^r	7,713	6,385
1994	5,311	4,343

Year	NET NEW ORDERS	BACKLOG AS OF DECEMBER 31
1977	\$ 3,280	\$ 4,541
1978	2,948	4,581
1979 ^d	3,724	4,916
1980	4,961	5,558
1981	6,030	6,749
1982	6,034	7,107
1983	7,231	8,406
1984	7,731	10,043
1985	8,122	10,190
1986	11,023	12,754
1987	11,482	14,302
1988	9,437	14,255
1989	8,998	14,005
1990	7,917	12,956
1991	8,072	12,571
1992	9,234	11,814
1993 ^r	4,775	9,306
1994	2,816	5,984

Source: Bureau of the Census, "Aerospace Industry (Orders, Sales, and Backlog)" Series MA37D (Annually).

a Excludes engines and propulsion units where separable.

b Based on AIA's aerospace composite price deflator (1987=100).

c AIA estimate based on MQ37D.

d Prior to 1980, includes space vehicle systems and parts sold to other than U.S. Government customers.

r Revised.

AEROSPACE FACTS AND FIGURES 1995/1996

BALLISTIC MISSILE DEFENSE ORGANIZATION FUNDING BY PROJECT NUMBER

Fiscal Years 1992–1996
(Millions of Dollars)

Project Number and Title	1992	1993	1994	1995 ^E	1996 ^E
1102 Microwave Radar	12	10	—	—	—
1103 Laser Radar Technology	14	—	—	—	—
1104 Signal Processing	31	19	—	—	—
1106 Sensor Studies & Experiments	168	285	—	—	—
1110 Sensor Integration	21	54	—	—	—
1151 Passive Sensors	35	21	131	107	103
1155 Phenomenology	86	86	87	78	59
1161 Advanced Sensor Technology	—	—	111	13	27
1170 TMD Risk Reduction	—	—	14	26	46
1201 Interceptor Component Technology	36	18	—	—	—
1202 Interceptor Integration Technology	125	185	—	—	—
1204 Interceptor Studies & Analysis	11	8	—	—	—
1209 Endoatmospheric Interceptor Technology	50	23	—	—	—
1212 D-2 HVG Projectile	6	10	—	—	—
1265 Boost Phase Int/Exo	—	—	40	40	49
1266 Sea-Based Theater Wide Defense	—	—	81	68	30
1267 Ground-Based Interceptor	—	—	69	138	127
1270 Advanced Interceptors	—	—	13	15	22
1299 Discontinued Projects	—	—	20	—	—
1301 Free Electron Laser	22	14	—	—	—
1302 Chemical Laser Technology	99	12	—	—	—
1303 Neutral Particle Beam Technology	75	90	—	—	—
1305 Acquisition, Tracking, Pointing & Fire Control Technology	60	19	—	—	—
1307 Directed Energy Demonstration	—	21	—	—	—
1360 Directed Energy Programs	—	—	75	42	30
1405 Communications Engineering	10	13	—	—	—
1460 BMC3	—	—	24	28	34
1501 Survivability Technology	66	29	—	—	—
1502 Lethality & Target Hardening	48	37	—	—	—
1503 Power & Power Conditioning	24	41	—	—	—
1504 Materials & Structures	28	22	—	—	—
1602,3 New Concepts Development	37	77	—	—	—
1651 Innovative Science & Technology	62	43	38	46	51
1660 Statutory & Mandated Programs	—	—	36	43	47
1700 Flight Test/Launch Activities	89	64	—	—	—

(Continued on next page)

MISSILE PROGRAMS

BALLISTIC MISSILE DEFENSE ORGANIZATION FUNDING BY PROJECT NUMBER (Continued)

Fiscal Years 1992–1996
(Millions of Dollars)

Project Number and Title	1992	1993	1994	1995 ^E	1996 ^E
2102 Space & Missile Tracking System	74	210	—	—	—
2154 TMD Ground-Based Radar	184	194	236	172	163
2160 TMD Existing System Modifications	—	—	20	16	27
2202 Ground-Based Exoatmospheric Interceptor Development	213	110	—	—	—
2205 Brilliant Pebbles	384	246	—	—	—
2208 ERINT	160	116	—	—	—
2257 PATRIOT	160	170	337	604	667
2259 ACES/ADP	60	58	65	51	57
2260 THAAD	100	273	474	480	427
2262 Corps SAM	25	23	16	15	30
2263 Sea-Based Area TBMD	30	90	150	154	254
2300 Command Center	72	49	—	—	—
2358 HAWK System BMC3	—	—	30	31	28
3101 Engineering/Integration Support	158	114	—	—	—
3152 NMD System Engineering	—	—	41	20	19
3153 Architecture Analysis/BMC3 Initiatives ..	—	—	12	12	12
3157 Environment, Siting, & Facilities	12	6	8	6	9
3160 Readiness Planning	—	—	8	15	16
3202 Operations Interface	8	8	—	—	—
3203 Intelligence Thread Development	15	6	—	—	—
3204 Countermeasures Integration	17	21	—	—	—
3206 System Threat	8	9	—	—	—
3207 Systems Analysis	25	12	—	—	—
3251 System Engineering & Technical Support	3	6	33	53	48
3261 C4I Concepts	—	23	13	21	71
3265 User Interface	—	—	15	14	18
3270 Threat & Countermeasures	—	—	31	30	33
3300 Test & Evaluation Support	403	623	—	—	—
3352 Modeling & Simulations	—	—	109	87	86
3354 Targets Support	—	—	84	64	26
3359 System Test & Evaluation	—	—	49	42	65
3360 Test Resources	—	—	39	44	46
4000 Management	247	481	219	167	186
Other programs ^a	85	55	—	—	—
TOTAL DETAILED PROJECTS	\$3,658	\$4,104	\$2,728	\$2,742	\$2,913

Source: Ballistic Missile Defense Organization, "1995 Report to the Congress on Ballistic Missile Defense" (Annually).

^a Projects with five year funding under \$20 million herein combined.

^E Estimate. Represents Administration's budget request.

Space Programs

ales of space systems, as reported by the Bureau of the Census, increased sharply in 1994 after two years of decline from a 1991 peak. The 1994 figure, which includes military, civil, and commercial programs, but does not include launch vehicle engines/motors nor spacecraft propulsion systems, was \$10.3 billion; it represented a gain of 24 percent over 1993's \$8.3 billion.

The gain was across the board, apparently compounded of industry deliveries of the first hardware components of the International Space Station, increasing commercial space activity, and continuing modernization of military orbital and ground-based space assets. Military sales totaled \$5.4 billion (up from \$4.2 billion) and non-military sales came to \$4.9 billion (up from \$4.1 billion).

The story was somewhat different in Census' report of net new orders received in 1994. Orders totaled \$8.8 billion (down from \$9.7 billion in 1993). Military orders remained close to the previous year's level; they were down to \$4.9 billion from 1993's \$5.1 billion. Non-military orders were down substantially, from \$4.6 billion in 1993 to \$3.9 billion in 1994.

The industry's backlog of orders similarly declined. At year-end 1994 it was \$13.1 billion, down

14 percent from 1993's \$15.2 billion. Here the larger decline was in backlog for military systems (\$7.1 billion, down from \$8.3 billion). The non-military backlog declined by approximately \$800 million to \$6.1 billion.

Census separately reported sales, orders, and backlog for propulsion systems but the data includes defense missile system propulsion units as well as space propulsion, and hence clouds the picture. Total sales came to \$2.6 billion, down roughly half a billion dollars. Net new orders increased from \$1.7 billion in 1993 to \$2.4 billion in 1994; the gain was entirely in the non-military area. Nonetheless, total backlog for propulsion systems continued its three-year decline, to \$6.7 billion from the previous year's \$7 billion.

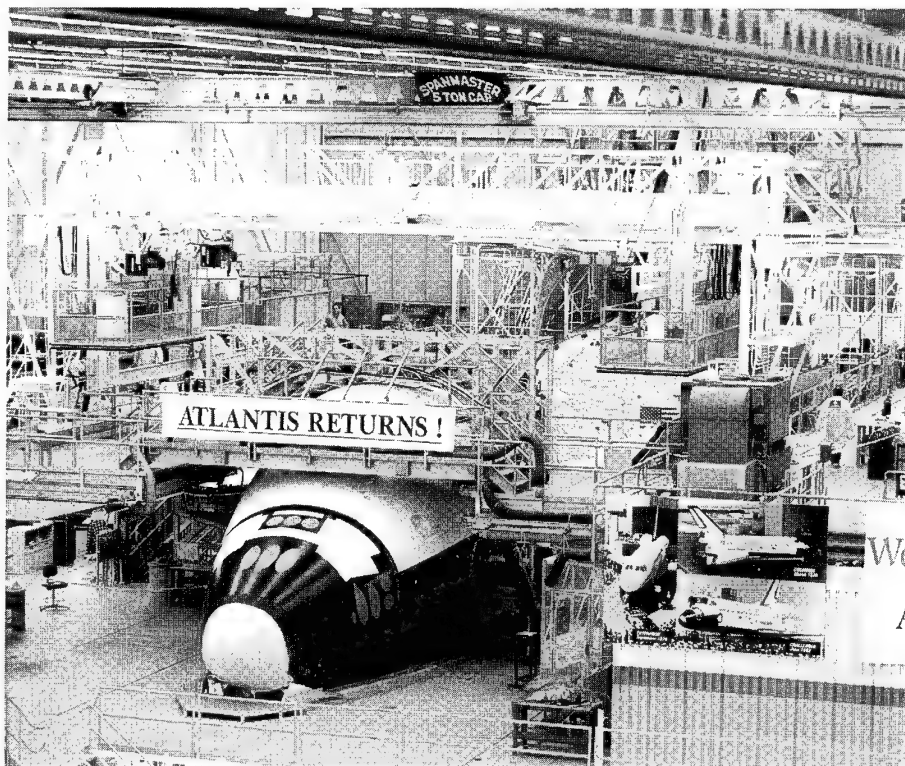
The trend in federal government investment in space, on the rise for almost two decades until it declined in 1992, continued downward in 1994. Total outlays for federal space activities in Fiscal Year (FY) 1994 amounted to \$23.8 billion, down from \$27.4 billion. Reduced military activity caused the greater portion of the significant drop; military outlays, at \$11 billion, were down from \$13.8 billion. Despite increasing space station activity, National Aeronautics and Space Administration (NASA) out-

lays fell from \$13.1 billion in 1993 to \$12.4 billion in 1994.

The Department of Defense and NASA accounted for 98 percent of total outlays; other agencies spent a combined total of \$463 million (down from \$540 million). The breakdown for 1994: Commerce, \$307 million (nearly unchanged); Energy, \$82 million (down \$83 million); other agencies, \$74 million (up \$7 million).

The NASA budget plan for FY 1996 called for budget authority of

\$14.3 billion (early Congressional actions indicated the figure would be reduced by \$600-\$700 million). The plan called for \$6 billion in a new research and development category designated "Science, Aeronautics, and Technology"; \$5.5 billion in "Human Space Flight"; \$2.8 billion in "Mission Support"; and \$18 million in "Other" (release of \$400 million previously appropriated for wind tunnel modernization was pending).



AEROSPACE FACTS AND FIGURES 1995/1996

ORDERS, SALES, AND BACKLOG

SPACE VEHICLE SYSTEMS^a

Calendar Years 1980–1994
(Millions of Dollars)

Year	SALES—Current Dollars			SALES—Constant Dollars ^b		
	TOTAL	Military	Non-Military	TOTAL	Military	Non-Military
1980	\$ 3,483	\$1,461	\$2,022	\$ 4,933	\$2,069	\$2,864
1981	3,856	1,736	2,120	4,850	2,184	2,667
1982	4,749	2,606	2,143	5,403	2,965	2,438
1983	4,940	2,420	2,520	5,358	2,625	2,733
1984	5,225	3,019	2,206	5,235	3,025	2,210
1985	6,300	4,241	2,059	6,383	4,297	2,086
1986	6,304	4,579	1,725	6,317	4,588	1,728
1987	8,051	5,248	2,803	8,051	5,248	2,803
1988	8,622	6,190	2,432	8,461	6,075	2,387
1989	9,758	6,457	3,301	9,197	6,086	3,111
1990	9,691	6,556	3,135	8,770	5,933	2,837
1991	10,515	6,770	3,745	9,175	5,908	3,268
1992	9,266	5,887	3,379	7,893	5,014	2,878
1993 ^r	8,309	4,175	4,133	6,878	3,456	3,421
1994	10,284	5,360	4,924	8,409	4,383	4,026

Year	NET NEW ORDERS			BACKLOG AS OF DECEMBER 31		
	TOTAL	Military	Non-Military	TOTAL	Military	Non-Military
1980	\$ 3,636	\$1,625	\$2,011	\$ 2,099	\$1,218	\$ 881
1981	5,062	2,878	2,184	3,163	2,166	997
1982	5,842	2,718	3,124	4,254	2,277	1,977
1983	5,399	3,016	2,383	4,865	2,733	2,132
1984	4,984	3,385	1,599	4,624	3,099	1,525
1985	8,383	6,083	2,300	6,707	4,941	1,766
1986	7,437	5,666	1,771	8,063	6,028	2,035
1987	11,455	9,000	2,455	12,393	9,460	2,933
1988	7,296	4,561	2,735	10,838	7,880	2,958
1989	11,709	8,107	3,602	13,356	9,192	4,164
1990	9,598	6,256	3,342	12,462	8,130	4,332
1991	11,222	5,468	5,754	11,664	6,221	5,443
1992	10,491	6,773	3,718	12,809	7,622	5,187
1993 ^r	9,697	5,106	4,591	15,203	8,332	6,871
1994	8,824	4,896	3,928	13,139	7,079	6,059

Source: Bureau of the Census, "Aerospace Industry (Orders, Sales, and Backlog)" Series MA37D (Annually).

^a Excludes engines and propulsion units where separable.

^b Based on AIA's aerospace composite price deflator, 1987=100.

^r Revised.

SPACE PROGRAMS

**ORDERS, SALES, AND BACKLOG
ENGINES AND PROPULSION UNITS FOR
MISSILES AND SPACE VEHICLES**

Calendar Years 1980–1994
(Millions of Dollars)

Year	SALES—Current Dollars			SALES—Constant Dollars ^a		
	TOTAL	Military	Non-Military	TOTAL	Military	Non-Military
1980	\$ 939	\$ 661	\$ 278	\$1,330	\$ 936	\$ 394
1981	1,204	786	418	1,514	989	526
1982	1,555	899	656	1,769	1,023	746
1983	1,814	951	863	1,967	1,031	936
1984	2,305	1,116	1,189	2,310	1,118	1,191
1985	2,466	1,256	1,210	2,498	1,273	1,226
1986	2,995	1,796	1,199	3,001	1,800	1,201
1987	2,993	1,563	1,430	2,993	1,563	1,430
1988	3,407	1,830	1,577	3,343	1,796	1,548
1989	3,602	1,771	1,831	3,395	1,669	1,726
1990	3,247	1,911	1,336	2,938	1,729	1,209
1991	3,807	1,869	1,938	3,322	1,631	1,691
1992	3,051	1,577	1,474	2,599	1,343	1,256
1993 ^r	3,104	1,619	1,485	2,570	1,340	1,229
1994	2,620	1,130	1,490	2,142	924	1,218

Year	NET NEW ORDERS			BACKLOG AS OF DECEMBER 31		
	TOTAL	Military	Non-Military	TOTAL	Military	Non-Military
1980	\$1,221	\$ 653	\$ 568	\$1,284	\$ 871	\$ 413
1981	1,284	746	538	1,343	828	515
1982	2,112	1,134	978	1,901	1,063	838
1983	1,618	942	676	1,691	1,052	639
1984	3,770	2,258	1,512	3,156	2,194	962
1985	3,823	1,323	2,500	4,513	2,261	2,252
1986	1,985	1,224	761	3,503	1,689	1,814
1987	3,335	1,995	1,340	3,849	2,121	1,728
1988	3,507	1,623	1,884	3,985	1,998	1,987
1989	6,113	2,475	3,638	6,410	2,595	3,815
1990	2,692	1,891	801	6,230	2,887	3,343
1991	5,661	1,087	4,574	8,422	2,327	6,095
1992	3,124	2,097	1,027	8,310	2,729	5,581
1993 ^r	1,708	710	998	6,975	1,903	5,072
1994	2,409	480	1,929	6,674	1,253	5,421

Source: Bureau of the Census, "Aerospace Industry (Orders, Sales, and Backlog)" Series MA37D (Annually).

a Based on AIA's aerospace composite price deflator, 1987=100.

r Revised.

AEROSPACE FACTS AND FIGURES 1995/1996

U.S. GOVERNMENT SPACECRAFT RECORD^a
Calendar Years 1957–1994

Year	Earth Orbit ^b		Earth Escape ^b		Year	Earth Orbit ^b		Earth Escape ^b	
	Success	Failure	Success	Failure		Success	Failure	Success	Failure
1957	—	1	—	—	1976	33	—	1	—
1958	5	8	—	4	1977	27	2	2	—
1959	9	9	1	2	1978	34	2	7	—
1960	16	12	1	2	1979	18	—	—	—
1961	35	12	—	2	1980	16	4	—	—
1962	55	12	4	1	1981	20	1	—	—
1963	62	11	—	—	1982	21	—	—	—
1964	69	8	4	—	1983	31	—	—	—
1965	93	7	4	1 ^c	1984	35	3	—	—
1966	94	12	7	1 ^c	1985	37	1	—	—
1967	78	4	10	—	1986	11	4	—	—
1968	61	15	3	—	1987	9	1	—	—
1969	58	1	8	1	1988	16	1	—	—
1970	36	1	3	—	1989	24	—	2	—
1971	45	2	8	1	1990	40	—	1	—
1972	33	2	8	—	1991	32	—	—	—
1973	23	2	3	—	1992	26 ^d	—	1	—
1974	27	2	1	—	1993	28 ^{dr}	1 ^r	1 ^r	—
1975	30	4	4	—	1994 ^f	27 ^d	1	1	—
TOTAL						1,314	146	85	15

Source: NASA, "Aeronautics and Space Report of the President" (Annually).

^a Payloads, rather than launchings; some launches account for multiple spacecraft. Includes spacecraft from cooperating countries launched on U.S. launch vehicles.

^b The criterion of success is attainment of Earth orbit or Earth escape rather than judgement of mission success. "Escape" flights include all that were intended to go at least an altitude equal to the lunar distance from the Earth.

^c This Earth-escape failure did attain Earth orbit and therefore is included in the Earth-orbit success totals.

^d Excludes commercial satellites.

^f Through September 30.

^r Revised.

SPACE PROGRAMS

**WORLDWIDE SPACE LAUNCHINGS^a
WHICH ATTAINED EARTH ORBIT OR BEYOND**

Calendar Years 1957–1994

Country	Total 1957– 1994	1990	1991	1992	1993^r	1994^b
TOTAL	3,643	116	95 ^r	100 ^r	78	63
U.S.S.R.	2,450	75	62	55	45	32
United States	1,018	27	20 ^r	31 ^r	24	20
European Space Agency	62	5	9	7 ^r	7	4
Japan	48	3	2	2	1	2
People's Republic of China ..	36	5	1	3	1	4
India	7	—	1	2	—	1
Israel	2	1	—	—	—	—
Other ^c	20	—	—	—	—	—

Source: NASA, "Aeronautics and Space Report of the President" (Annually).

a Number of launchings rather than spacecraft; some launches orbited multiple spacecraft.

b Through September 30.

c Includes 10 by France, 8 by Italy (5 were U.S. spacecraft), 1 by Australia, and 1 by the United Kingdom.

r Revised.

AEROSPACE FACTS AND FIGURES 1995/1996

U.S. SPACE LAUNCH VEHICLES

As of 1994

Vehicle and Initial Launch & First Launch of this Modification	Stages	Thrust (Kilo- newtons)	Maximum Payload (Kg) ^a		
			185-Km Orbit	Geo- synch.- Transfer Orbit	Circular Sun- Synch. Orbit
Pegasus (1990)	1. Orion 50S* 2. Orion 50* 3. Orion 38*	484.9 118.2 31.9	380 280 ^b	—	210
Pegasus XL (1994) ^z	1. Orion 50S-XL* 2. Orion 50-XL* 3. Orion 38*	743.3 201.5 31.9	460 350 ^b	—	335
Taurus (1994)	0. Castor 120* 1. Orion 50S* 2. Orion 50* 3. Orion 38*	1,687.7 580.5 138.6 31.9	1,400 1,080 ^b	255	1,020
Delta II 7900 Series (1960; 1990)	1. RS-27A plus 9 Hercules GEM* 2. AJ10-118K	1,043.0 4,388.4 42.9	5,089 3,890 ^b	1,842 ^c	3,175
Atlas E (1958; 1968)	1. Atlas booster & sustainer	1,739.5	820 ^b 1,860 ^{bd}	— —	— 910 ^d
Atlas I (1966; 1990)	1. Atlas booster & sustainer 2. 2 Centaur I	1,952.0 146.8	—	2,255	—
Atlas II (1966; 1991)	1. Atlas booster & sustainer 2. 2 Centaur II	2,110.0 146.8	6,580 5,510 ^b	2,610	4,300
Atlas IIA (1966; 1992)	1. Atlas booster & sustainer 2. 2 Centaur II	2,110.0 185.0	7,280 6,170 ^b	3,039	4,750
Atlas IIAS (1966; 1994)	1. Atlas booster & sustainer plus 4 Castor IV* 2. 2 Centaur II	2,110.0 1,913.2 185.0	8,640 7,300 ^b	3,606	5,800

(Continued on next page)

SPACE PROGRAMS

U.S. SPACE LAUNCH VEHICLES

As of 1994 (Continued)

Vehicle and Initial Launch & First Launch of this Modification	Stages	Thrust (Kilo- newtons)	Maximum Payload (Kg) ^a		
			185-Km Orbit	24-Hour Polar Orbit	Circular Sun- Synch. Orbit
Titan II (1964; 1988)	1. 2 LR-87 2. LR-91	2,090.0 440.0	1,905 ^b	—	—
Titan III (1964; 1989)	0. 2 5 1/2-segment, 3.05-m. dia* 1. 2 LR-87 2. LR-91	12,420.0 2,429.0 462.8	14,515	5,000 ^f	—
Titan IV (1989)	0. 2 7-segment, 3.05-m. dia* 1. 2 LR-87 2. LR-91	14,000.0 2,429.0 462.8	17,700 14,110 ^b	6,350 ^f	—
Titan IV/Centaur (1994)	0. 7-segment, 4.3-m. dia* 1. LR-87 2. LR-91 3. Centaur	7,000.0 1,214.5 462.8 73.4	—	5,760	—
Space Shuttle (reusable) (1981)	1. 3 main engines (SSMEs) fire in parallel with solid- fueled rocket boosters (SRBs) 2. 2 SRBs mounted on external tank (ET) fire in parallel with SSMEs	5,006.1 23,580.0	24,900 ^g	5,900 ^h	—

Source: NASA, "Aeronautics and Space Report of the President" (Annually) and NASA Historian's office.

* Solid propellant; all others are liquid.

a Due east launch except as indicated.

b Polar launch.

c With Star 48B.

d With TE-M-364-4 upper stage.

f With appropriate upper stage.

g In full performance configuration (280–420 km orbit).

h With IUS or TOS.

z First launch was a failure.

AEROSPACE FACTS AND FIGURES 1995/1996

FEDERAL SPACE ACTIVITIES OUTLAYS

Fiscal Years 1961–1994
(Millions of Current Dollars)

Year	TOTAL	NASA ^a	DoD	Energy	Commerce	Other ^b
1961	\$ 1,468	\$ 694	\$ 710	\$ 64	\$ —	\$ —
1962	2,387	1,226	1,029	130	1	1
1963	4,079	2,517	1,368	181	12	1
1964	5,930	4,131	1,564	220	12	3
1965	6,886	5,035	1,592	232	24	3
1966	7,719	5,858	1,637	188	28	7
1967	7,237	5,337	1,673	184	39	5
1968	6,667	4,595	1,890	147	29	6
1969	6,326	4,078	2,095	118	31	5
1970	5,453	3,565	1,756	103	24	5
1971	4,999	3,171	1,693	97	30	8
1972	4,772	3,195	1,470	60	37	10
1973	4,719	3,069	1,557	51	29	13
1974	4,854	2,960	1,777	39	64	14
1975	4,891	2,951	1,831	34	64	11
1976	5,314	3,336	1,864	26	71	16
Tr.Qtr.	1,361	869	458	8	23	4
1977	5,559	3,600	1,833	22	87	18
1978	6,188	3,582	2,457	29	101	20
1979	6,808	3,744	2,892	55	97	21
1980	7,668	4,340	3,162	49	89	28
1981	9,166	4,877	4,131	47	81	30
1982	10,466	5,463	4,772	60	142	30
1983	12,590	6,101	6,247	40	178	25
1984	14,726	6,461	8,000	33	209	22
1985	17,255	6,607	10,441	34	155	17
1986	18,581	6,756	11,449	35	317	25
1987	21,844	7,254	14,264	37	262	26
1988	23,414	8,451	14,397	199	334	33
1989	25,143	10,195	14,504	97	306	41
1990	25,671	12,292	12,962	79	279	60
1991	28,360	13,351	14,432	251	266	60
1992	27,865 ^r	12,838	14,437	223	298	69 ^r
1993	27,411	13,092	13,779	165	308	67
1994 ^E	23,799	12,363	10,973	82	307	74

Source: NASA, "Aeronautics and Space Report of the President" (Annually).

NOTE: Detail may not add to totals because of rounding.

a Excludes amounts for air transportation.

b Departments of Interior and Agriculture, and the National Science Foundation. NSF funding transferred to NASA after 1982.

E Estimated.

r Revised.

Tr.Qtr. See Glossary.

SPACE PROGRAMS

**FEDERAL SPACE ACTIVITIES OUTLAYS
IN CONSTANT DOLLARS**

Fiscal Years 1961–1994
(Millions of Constant Dollars^a)

Year	TOTAL	NASA ^b	DoD	Energy	Commerce	Other ^c
1961	\$ 5,584	\$ 2,640	\$ 2,701	\$243	\$ —	\$ —
1962	8,910	4,576	3,840	485	4	3
1963	14,973	9,239	5,020	664	45	4
1964	21,454	14,947	5,657	796	45	9
1965	24,358	17,810	5,631	821	85	11
1966	26,551	20,151	5,633	648	97	23
1967	24,076	17,753	5,566	611	128	18
1968	21,369	14,729	6,058	470	93	18
1969	19,293	12,437	6,389	358	95	14
1970	15,774	10,313	5,080	297	69	15
1971	13,756	8,726	4,659	268	82	22
1972	12,482	8,357	3,845	156	98	26
1973	11,734	7,632	3,871	127	73	31
1974	11,218	6,842	4,107	90	148	32
1975	10,279	6,202	3,848	72	134	23
1976	10,375	6,514	3,640	50	139	32
Tr. Qtr.	2,553	1,630	859	15	43	8
1977	10,038	6,500	3,309	40	157	32
1978	10,388	6,014	4,125	48	169	33
1979	10,516	5,783	4,467	84	150	32
1980	10,864	6,149	4,480	69	126	39
1981	11,787	6,272	5,312	60	104	39
1982	12,527	6,539	5,711	71	170	35
1983	14,468	7,011	7,178	46	205	29
1984	16,209	7,112	8,806	37	230	25
1985	18,294	7,005	11,070	36	165	18
1986	19,132	6,956	11,788	36	326	26
1987	21,844	7,254	14,264	37	262	26
1988	22,594	8,154	13,893	192	322	32
1989	23,231	9,420	13,401	90	283	38
1990	22,921	10,975	11,573	71	249	54
1991	24,302 ^r	11,440 ^r	12,367 ^r	215	228	51
1992 ^r	23,201	10,689	12,021	186	248	57
1993	22,285	10,644	11,202	134	250	54
1994 ^E	18,978	9,859	8,750	65	245	59

Source: AIA, derived from NASA, "Aeronautics and Space Report of the President" (Annually).

NOTE: Detail may not add to totals because of rounding.

a Based on fiscal year GDP implicit price deflator, 1987 = 100.

b Excludes amounts for air transportation.

c Departments of Interior and Agriculture, and the National Science Foundation. NSF funding transferred to NASA after 1982.

E Estimated.

r Revised.

Tr. Qtr. See Glossary.

AEROSPACE FACTS AND FIGURES 1995/1996

FEDERAL SPACE ACTIVITIES BUDGET AUTHORITY

Fiscal Years 1961–1994

(Millions of Dollars)

Year	TOTAL	NASA ^a	DoD	Energy	Commerce	Other ^b
1961	\$ 1,809 ^r	\$ 926	\$ 814	\$ 68	\$ —	\$ 1
1962	3,295	1,797	1,298	148	51	1
1963	5,435	3,626	1,550	214	43	2
1964	6,831	5,016	1,599	210	3	3
1965	6,956	5,138	1,574	229	12	3
1966	6,971 ^r	5,065	1,689	187	27	3
1967	6,710	4,830	1,664	184	29	3
1968	6,529	4,430	1,922	145	28	4
1969	5,976	3,822	2,013	118	20	3
1970	5,340 ^r	3,547	1,678	103	8	4
1971	4,741	3,101	1,512	95	27	5
1972	4,575	3,071	1,407	55	31	11 ^r
1973	4,825	3,093	1,623	54	40	15
1974	4,640	2,759	1,766	42	60	14
1975	4,914	2,915	1,892	30	64	12 ^r
1976	5,320	3,225	1,983	23	72	16
Tr.Qtr.	1,341	849	460	5	22	5 ^r
1977	5,983	3,440	2,412	22	91	18
1978	6,518	3,623	2,738	34	103	20
1979	7,244	4,030	3,036	59	98	20 ^r
1980	8,689	4,680	3,848	40	93	28
1981	9,978	4,992	4,828	41	87	30
1982	12,441	5,528	6,679	61	145	29
1983	15,589	6,328	9,019	39	178	25
1984	17,136	6,648	10,195	34	236	22
1985	20,167	6,925	12,768	34	423	17
1986	21,659	7,165	14,126	35	309	25
1987	26,448	9,809	16,287	48	278	28 ^r
1988	26,607	8,302	17,679	241	352	32 ^r
1989	28,448 ^r	10,098	17,906	97	301	46 ^r
1990	28,145 ^r	12,142	15,616	79	243	65 ^r
1991	27,783 ^r	13,036	14,181	251	251	64 ^r
1992	28,845 ^r	13,199	15,023	223	327	74 ^r
1993	27,742	13,077	14,106	165	324	70
1994 ^E	26,653	13,022	13,166	78	312	75

Source: NASA, "Aeronautics and Space Report of the President" (Annually).

NOTE: Detail may not add to totals because of rounding.

a Excludes amounts for air transportation.

b Departments of Interior and Agriculture, and the National Science Foundation, and the Environmental Protection Agency. NSF funding transferred to NASA after 1982.

E Estimated.

r Revised.

Tr.Qtr. See Glossary.

SPACE PROGRAMS

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
BUDGET AUTHORITY**

Fiscal Years 1968–1996
(Millions of Current Dollars)

Year	TOTAL	Research and Development	Space Flight Control and Data Commun- ications ^a	Construc- tion of Facilities	Research & Program Management ^b
1968	\$ 4,589	\$3,912	\$ —	\$ 38	\$ 639
1969	3,995	3,314	—	33	648
1970	3,749	2,993	—	53	703
1971	3,312	2,556	—	26	730
1972	3,308	2,523	—	53	732
1973	3,408	2,599	—	79	730
1974	3,040	2,194	—	101	745
1975	3,231	2,323	—	143	765
1976	3,552	2,678	—	82	792
Tr.Qtr.	932	700	—	11	221
1977	3,819	2,856	—	118	845
1978	4,064	3,012	—	162	890
1979	4,559	3,477	—	148	934
1980	5,243	4,088	—	159	996
1981	5,522	4,334	—	117	1,071
1982	6,020	4,772	—	114	1,134
1983	6,875	5,539	—	139	1,197
1984	7,316	2,064 ^a	3,772	223	1,256
1985	7,573	2,468	3,594	178	1,332
1986	7,807	2,619	3,670	176	1,342
1987	10,923	3,154	6,100	217	1,453
1988	9,062	3,280	3,806	213	1,763
1989	10,969	4,213	4,555	275	1,927
1990	12,324	5,225	4,645	218	2,023
1991	14,016	6,024	5,271	498	2,212
1992	14,317	6,848	5,352	525	1,576
1993	14,310	7,074	5,059	526	1,652
1994	14,570	7,534	4,835	493	1,708
Year	TOTAL	Science, Aeronautics, & Technology	Human Space Flight	Other ^b	Mission Support
1995 ^{CE}	\$14,438	\$5,961	\$5,515	\$389	\$2,572
1996 ^E	14,261	6,007	5,510	18	2,726

Source: Office of Management and Budget, "Budget of the United States Government" (Annually).

NOTE: Detail may not add to totals because of rounding.

^a Separate budget category beginning in 1984; funds formerly included under Research and Development.^b Includes trust funds, Office of the Inspector General, & GSA building delegation.^c 1995 features major budget account restructuring.^E Estimate. Latest year reflects Administration's budget proposal.

Tr.Qtr. See Glossary.

AEROSPACE FACTS AND FIGURES 1995/1996

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION OUTLAYS

Fiscal Years 1968–1996
(Millions of Current Dollars)

Year	TOTAL	Research and Development	Space Flight Control and Data Commun- ications ^a	Construc- tion of Facilities	Research & Program Management ^b
1968	\$ 4,724	\$3,946	\$ —	\$126	\$ 652
1969	4,252	3,530	—	65	656
1970	3,753	2,992	—	54	707
1971	3,382	2,630	—	44	708
1972	3,423	2,623	—	50	749
1973	3,315	2,541	—	45	729
1974	3,256	2,422	—	75	760
1975	3,267	2,420	—	85	761
1976	3,669	2,749	—	121	799
Tr.Qtr.	951	731	—	26	195
1977	3,945	2,980	—	105	860
1978	3,983	2,989	—	124	870
1979	4,197	3,139	—	133	925
1980	4,852	3,701	—	140	1,010
1981	5,421	4,223	—	147	1,051
1982	6,035	4,796	—	109	1,130
1983	6,664	5,316	—	108	1,240
1984	7,048	2,792 ^a	2,915	109	1,232
1985	7,318	2,118	3,707	170	1,323
1986	7,404	2,615	3,267	189	1,332
1987	7,591	2,436	3,597	149	1,409
1988	9,092	2,916	4,362	166	1,648
1989	11,052	3,922	5,030	190	1,909
1990	12,429	5,094	5,117	218	2,000
1991	13,878	5,765	5,590	326	2,196
1992	13,961	6,579	5,118	463	1,802
1993	14,306	7,086	5,025	557	1,638
1994	13,695	6,758	4,899	371	1,666
1995 ^{CE}	5,804	3,532	1,614	537	121
1996 ^{CE}	811	460	199	144	8

Year	TOTAL	Science, Aeronautics, & Technology	Human Space Flight	Other ^b	Mission Support
1995 ^{CE}	\$ 8,436	\$2,911	\$3,432	\$ 16	\$2,077
1996 ^{CE}	13,316	5,311	5,431	19	2,555

Source: Office of Management and Budget, "Budget of the United States Government" (Annually).

NOTE: Detail may not add to totals because of rounding.

a Separate budget category beginning in 1984; funds formerly included under Research and Development.

b Includes trust funds, Office of Inspector General, & GSA building delegation.

c 1995 featured major budget account restructuring. Note: 1995 and 1996 outlays split between old and new account structure.

E Estimate. Latest year reflects Administration's budget proposal.

Tr.Qtr. See Glossary.

SPACE PROGRAMS

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION OUTLAYS IN CONSTANT DOLLARS

Fiscal Years 1968–1996
(Millions of Constant Dollars^a)

Year	TOTAL	Research and Development	Space Flight Control and Data Communications ^b	Construction of Facilities	Research & Program Management ^c
1968	\$15,141	\$12,647	\$ —	\$404	\$2,090
1969	12,967	10,765	—	198	2,001
1970	10,856	8,655	—	156	2,045
1971	9,307	7,237	—	121	1,948
1972	8,954	6,861	—	131	1,959
1973	8,242	6,318	—	112	1,813
1974	7,525	5,597	—	173	1,756
1975	6,866	5,086	—	179	1,599
1976	7,163	5,367	—	236	1,560
Tr.Qtr.	1,784	1,371	—	49	366
1977	7,124	5,381	—	190	1,553
1978	6,686	5,018	—	208	1,460
1979	6,483	4,849	—	205	1,429
1980	6,874	5,244	—	198	1,431
1981	6,971	5,431	—	189	1,352
1982	7,223	5,740	—	130	1,352
1983	7,658	6,109	—	124	1,425
1984	7,758	3,073 ^b	3,209	120	1,356
1985	7,759	2,246	3,930	180	1,403
1986	7,624	2,693	3,364	195	1,371
1987	7,591	2,436	3,597	149	1,409
1988	8,774	2,814	4,209	160	1,590
1989	10,212	3,624	4,648	176	1,764
1990	11,097	4,548	4,569	195	1,786
1991 ^f	11,892	4,940	4,790	279	1,882
1992 ^f	11,624	5,478	4,261	386	1,500
1993 ^f	11,631	5,761	4,085	453	1,332
1994	10,921	5,389	3,907	296	1,329
1995 ^{dE}	4,506	2,742	1,253	417	94
1996 ^{dE}	612	347	150	109	6

Year	TOTAL	Science, Aeronautics, & Technology	Human Space Flight	Other ^c	Mission Support
1995 ^{dE}	\$ 6,550	\$ 2,260	\$2,665	\$ 12	\$1,613
1996 ^{dE}	10,042	4,005	4,096	14	1,927

Source: AIA, derived from Office of Management and Budget, "Budget of the United States Government" (Annually).

NOTE: Detail may not add to totals because of rounding.

a Based on fiscal year GDP implicit price deflator, (1987=100).

b Separate budget category beginning in 1984; funds formerly included under Research and Development.

c Includes trust funds, Office of Inspector General, & GSA building delegation.

d 1995 featured major budget account restructuring. Note: 1995 and 1996 outlays split between old and new account structure.

E Estimate. Latest year reflects Administration's budget proposal.

r Revised.

Tr.Qtr. See Glossary.

AEROSPACE FACTS AND FIGURES 1995/1996

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
BUDGET AUTHORITY BY MAJOR BUDGET ACCOUNT
FOR SELECTED PROGRAMS**

Fiscal Years 1995–1996
(Millions of Dollars)

	1995 ^E	1996 ^E
HUMAN SPACE FLIGHT	\$5,515	\$5,510
Space Station	\$1,890	\$1,834
U.S.-Russian Cooperative Space Activities	150	129
Space Shuttle—Total	<u>3,155</u>	<u>3,232</u>
Shuttle Operations	2,415	2,395
Safety & Obsolescence Upgrades	740	837
Payload & Utilization Operations	320	315
SCIENCE, AERONAUTICS, & TECHNOLOGY	\$5,944	\$6,007
Space Science—Total	<u>\$2,013</u>	<u>\$1,959</u>
Physics & Astronomy	1,196	1,131
Planetary Exploration	817	828
Life & Microgravity Sciences & Applications	483	504
Mission To Planet Earth	1,340	1,341
Space Access & Technology	642	706
Aeronautical Research & Technology	882	917
Mission Communication Services	481	461
Academic Programs	102	119
MISSION SUPPORT	\$2,589	\$2,726
Safety, Reliability, & Quality Assurance	\$ 39	\$ 38
Space Communication Services	227	319
Research & Program Management	2,189	2,203
Construction of Facilities	135	166

Source: "NASA Budget Briefing Background Material" (Annually).

Note: Detail may not add to totals because of rounding.

E Estimate. Latest year reflects Administration's budget proposal.

SPACE PROGRAMS

**DEPARTMENT OF DEFENSE SPACE PROGRAMS
PROCUREMENT (INCLUDING INITIAL SPARES) AND RDT&E**

Fiscal Years 1994, 1995, and 1996
(Millions of Dollars^a)

Agency and Program	1994		1995 ^E		1996 ^E	
	Pro- cure- ment	RDT&E	Pro- cure- ment	RDT&E	Pro- cure- ment	RDT&E
AIR FORCE						
DSCS ^b	\$101.5	\$ 19.9	\$133.5	\$ 46.4	\$115.1	\$ 51.7
Defense Support Program ..	350.3	46.9	361.4	66.1	102.9	43.7
Medium Launch Vehicle ..	109.5	69.5	135.1	20.5	189.8	21.9
Milstar	—	904.0	—	616.2	—	692.3
NAVSTAR GPS	160.0	36.8	188.8	36.0	174.5	46.6
Space Boosters	463.2	263.5	379.1	150.9	465.0	140.5
NAVY						
FSC	\$167.1	NA	\$124.6	\$ 20.6	\$ 51.8	\$ 21.0

Source: Department of Defense, "Program Acquisition Costs by Weapon System" (Annually).

a Total Obligational Authority.

b Army and Air Force funding.

E Estimate. Latest year reflects Administration's budget proposal.

NA Not available.

KEY: DSCS = Defense Satellite Communications System

FSC = Fleet Satellite Communications

GPS = Global Positioning System

Air Transportation

The financial problems that had plagued the world's airlines for several years lessened in 1994 as traffic and revenues increased substantially, but they were not eliminated. The net result for the world scheduled airline members of the International Civil Aviation Organization (ICAO) was a loss of \$500 million, although the loss was small in comparison with the earlier years of the 1990s.

The combined losses of ICAO members in 1994 were due to factors not directly related to ticket sales and flight operations, but principally to interest costs for servicing the huge debts incurred by many airlines in the recession years. From the standpoint of operating results, both ICAO carriers and U.S. airlines posted significant gains in operating profits.

The U.S. scheduled airlines recorded an operating profit of \$2.8 billion in 1994, almost double that of the previous year (a turnaround year after three years in which aggregate operating losses topped \$6 billion). Total revenues were \$87.4 billion, up from \$84.6 billion in 1993. Domestic operations accounted for almost 75 percent of the revenue (\$65.3 billion) and 83 percent of the

profit (\$2.3 billion). International service by U.S. carriers produced an operating profit of \$476 million on revenues of \$22.1 billion.

The world's airlines had an operating profit of \$8 billion on revenues of \$247.5 billion, according to ICAO data, compared with \$2.3 billion profit in 1993.

U.S. airlines experienced traffic gains in both domestic and international operations. In 1994, scheduled U.S. carriers flew a record 67.9 billion revenue ton-miles, up from 63.1 billion. Passenger traffic accounted for 51.9 billion revenue ton-miles (up from 49 billion) and cargo traffic 16 billion (up from 14.1 billion). The total revenue load factor was 56.3 percent (up from 54.6 percent).

In domestic service, the U.S.



scheduled airlines boarded more than 481 million passengers, up from 443 million in the previous year. Revenue passenger miles totaled 378.8 billion (up from 354.2 billion). The domestic passenger load factor was 64.7 percent (up from 62 percent).

U.S. carriers' international service reached a record high of 47.1 million enplanements, which compares with 45.3 million in 1993. International revenue passenger miles amounted to 140.3 billion (up from 135.5 billion). The international passenger load factor was 70.6 percent, up from 67.7 percent.

The U.S. airlines reported total assets at year-end 1994 of \$83.7 billion, including flight equipment valued at \$51.8 billion.

The world airline fleet of turbine-powered aircraft increased by 1,058 units in 1994, according to the annual survey sponsored by Exxon International. At year-end 1994, the fleet numbered 18,342 aircraft, excluding planes operated by the Russian airline Aeroflot and by air taxi operators. The breakdown includes 12,000 turbojets (up from 11,345), 6,052 turboprops (up from 5,697), and 295 turbine-powered helicopters (up from 242).

The number of U.S.-built turbine aircraft in world service rose from 10,523 in 1993 to 10,913 in 1994. The U.S.-built percentage dropped to 59.5 percent, down from 60.9 percent in 1993.



AEROSPACE FACTS AND FIGURES 1995/1996

OPERATING REVENUES AND EXPENSES OF WORLD SCHEDULED AIRLINES^a

Calendar Years 1991–1994
(Millions of U.S. Dollars)

	1991	1992 ^r	1993	1994 ^p
OPERATING REVENUES:				
Scheduled Services:				
Passenger	\$156,760	\$165,140	\$171,440	
Freight	19,400	20,110	20,270	
Mail	2,310	2,340	2,220	
				NA
Total Scheduled Services	\$178,470	\$187,590	\$193,930	
Non-Scheduled Services	8,260	7,870	8,230	
Incidental	18,770	22,340	23,840	
Total Operating Revenues	\$205,500	\$217,800	\$226,000	\$247,500
OPERATING EXPENSES:				
Flight Operations	\$ 56,420	\$ 57,360	\$ 59,270	
Maintenance & Overhaul	23,120	23,830	22,530	
Depreciation & Amortization	14,310	15,380	15,580	
User Charges & Station				NA
Expenses	34,460	37,880	38,740	
Passenger Services	21,380	23,630	23,580	
Ticketing, Sales & Promotion	34,340	36,050	36,590	
General, Administrative & Other .	21,970	25,470	27,410	
Total Operating Expenses	\$206,000	\$219,600	\$223,700	\$239,500
OPERATING RESULT	\$ (500)	\$ (1,800)	\$ 2,300	\$ 8,000
Percent of Revenue	-0.2 %	-0.8 %	1.0 %	3.2 %
NET RESULT^b	\$ (3,500)	\$ (7,900)	\$ (4,400)	\$ (500)
Percent of Revenue	-1.7 %	-3.8 %	-1.9 %	-0.2 %

Source: International Civil Aviation Organization, "Civil Aviation Statistics of the World" (Annually).

a Excludes domestic operations in the Commonwealth of Independent States.

b Net Result equals Operating Result minus non-operating items, including interest, income taxes, retirement of property and equipment, affiliated companies, and subsidies.

NA Not available.

p Preliminary.

r Revised.

() Denotes loss.

AIR TRANSPORTATION

TRAFFIC STATISTICS WORLD AIRLINE SCHEDULED SERVICE^a Calendar Years 1970-1994

Year	Passen- gers Carried	Freight Tons Carried	Passen- ger- Miles Per- formed	Seat- Miles Avail- able	Passen- ger Load Factor	Ton-Miles Performed		
						Freight	Mail	TOTAL (Passen- gers & Baggage, Freight, Mail)
	(Millions)	(Millions)	(Billions)	(Billions)	(Percent)			
1970	383	6.7	286	522	55 %	8,180	2,150	38,810
1971	411	7.4	307	568	54	9,060	1,990	41,420
1972	450	8.0	348	609	57	10,290	1,900	46,690
1973	489	9.0	384	667	58	12,010	1,970	51,910
1974	515	9.5	408	688	59	13,030	1,980	55,270
1975	534	9.6	433	733	59	13,270	1,990	58,080
1976	576	10.3	475	789	60	14,750	2,080	63,880
1977	610	11.1	508	837	61	16,190	2,180	68,790
1978	679	11.7	582	902	65	17,770	2,240	77,770
1979	754	12.1	659	999	66	19,190	2,350	86,900
1980	748	12.2	677	1,071	63	20,120	2,520	89,710
1981	752	12.0	695	1,091	64	21,150	2,600	92,800
1982	766	12.8	710	1,115	64	21,600	2,650	94,830
1983	798	13.5	739	1,151	64	24,050	2,740	100,270
1984	848	14.8	794	1,225	65	27,170	2,950	109,040
1985	899	15.1	849	1,293	66	27,290	3,010	114,860
1986	960	16.2	902	1,389	65	29,580	3,110	122,470
1987	1,028	17.7	987	1,471	67	33,100	3,220	134,570
1988	1,082	19.0	1,059	1,568	68	36,490	3,310	145,290
1989 ^r	1,109	20.0	1,102	1,620	68	39,132	3,464	152,760
1990 ^r	1,165	20.2	1,177	1,740	68	40,290	3,650	161,130
1991 ^r	1,135	19.2	1,146	1,726	66	40,114	3,490	157,950
1992 ^r	1,148	17.3	1,198	1,817	66	42,886	3,506	165,720
1993	1,141	19.3	1,214	1,875	65	46,220	3,580	171,290
1994 ^p	1,203	22.0	1,296	1,959	66	52,420	3,750	185,960

Source: International Civil Aviation Organization (ICAO).

^a Includes international and domestic traffic on scheduled service performed by the airlines of the 183 states which were members of ICAO in 1994.

^p Preliminary.

^r Revised.

AEROSPACE FACTS AND FIGURES 1995/1996

OPERATING REVENUES AND EXPENSES OF U.S. AIR CARRIERS^a DOMESTIC AND INTERNATIONAL OPERATIONS

Calendar Years 1964–1994
(Millions of Dollars)

Year	TOTAL OPERATIONS ^b			Domestic Operations			International Operations		
	Operating Revenues	Operating Expenses	Operating Profit (or Loss)	Operating Revenues	Operating Expenses	Operating Profit (or Loss)	Operating Revenues	Operating Expenses	Operating Profit (or Loss)
1964	\$ 4,251	\$ 3,781	\$ 470	\$ 3,169	\$ 2,849	\$ 320	\$ 1,082	\$ 932	\$ 150
1965	4,958	4,286	672	3,691	3,239	452	1,267	1,047	220
1966	5,745	4,970	775	4,171	3,670	502	1,574	1,300	274
1967	6,865	6,157	708	4,981	4,560	421	1,884	1,597	287
1968	7,753	7,248	505	5,691	5,397	295	2,062	1,852	210
1969	8,791	8,403	387	6,936	6,613	322	1,855	1,790	65
1970	9,290	9,247	43	7,180	7,181	(1)	2,109	2,066	44
1971	10,046	9,717	328	7,753	7,496	257	2,292	2,221	71
1972	11,163	10,578	584	8,652	8,158	493	2,512	2,420	91
1973	12,419	11,834	585	9,694	9,200	494	2,725	2,633	91
1974	14,703	13,978	725	11,546	10,761	785	3,157	3,218	(60)
1975	15,356	15,229	128	12,020	11,903	117	3,336	3,326	11
1976	17,503	16,781	721	13,899	13,324	575	3,605	3,457	147
1977	19,926	19,018	908	15,822	15,166	657	4,104	3,852	252
1978	22,892	21,527	1,366	18,189	17,172	1,018	4,703	4,355	348
1979	27,227	27,028	199	21,652	21,523	129	5,575	5,505	69
1980	33,728	33,949	(222)	26,404	26,409	(6)	6,543	6,766	(223)
1981	36,211	36,612	(401)	28,788	29,051	(264)	6,390	6,574	(184)
1982	36,066	36,804	(739)	28,728	29,478	(750)	6,435	6,452	(17)
1983	38,593	38,231	362	31,014	31,186	(171)	7,163	6,693	470
1984	44,060	41,946	2,114	35,394	33,812	1,582	7,975	7,485	490
1985	48,580	47,207	1,372	37,629	36,611	1,018	8,302	7,984	319
1986	50,086	48,855	1,231	41,001	39,984	1,060	8,621	8,458	163
1987	56,787	54,339	2,448	45,658	43,925	1,733	10,925	10,226	698
1988	63,679	60,236	3,443	50,187	47,739	2,448	13,402	12,403	998
1989	69,225	67,413	1,812	54,314	52,460	1,855	14,911	14,954	(43)
1990	75,984	77,898	(1,913)	57,994	58,983	(989)	17,990	18,914	(924)
1991	75,158	76,943	(1,785)	56,230	56,758	(528)	18,928	20,185	(1,257)
1992	78,140	80,585	(2,444)	57,654	58,801	(1,147)	20,486	21,784	(1,298)
1993	84,559	83,121	1,438	63,233	61,157	2,076	21,326	21,964	(637)
1994 ^p	87,370	84,608	2,762	65,260	62,974	2,286	22,110	21,634	476

Source: Department of Transportation, Office of Aviation Statistics, "Air Carrier Financial Statistics Quarterly" (Quarterly).

NOTE: Detail may not add to totals because of rounding.

a Scheduled and non-scheduled service for all certificated route air carriers. Excludes supplemental air carriers, commuters, and air taxis.

b For 1980 and subsequent years, includes 'Other' operations not reported as 'Domestic' or 'International.'

p Preliminary.

AIR TRANSPORTATION

**U.S. AIR CARRIERS
TOTAL ASSETS AND INVESTMENT IN EQUIPMENT**

Calendar Years 1969-1994
(Millions of Dollars)

Year	TOTAL Assets	Value of Flight Equipment	Value of Ground Property & Equipment & Other ^a	Less: Reserves for Depreciation & Overhaul	Equals: Net Value of Owned Operating Property & Equipment	Investment in Operating Property and Equipment as a Percent of Total Assets
1969	\$12,069	\$ 9,943	\$ 1,516	\$ 3,560	\$ 7,899	65.4 %
1970	12,913	10,950	1,951	4,120	8,782	68.0
1971	12,998	11,221	2,028	4,649	8,600	66.2
1972	13,635	11,918	2,225	5,115	9,028	66.2
1973	14,464	12,908	2,424	5,693	9,639	66.6
1974	15,200	13,538	2,539	6,252	9,826	64.6
1975	15,064	14,035	2,635	6,823	9,847	65.4
1976	15,454	14,399	2,792	7,585	9,605	62.2
1977	16,869	14,822	2,997	8,141	9,679	57.4
1978	20,745	16,127	3,367	8,799	10,696	51.6
1979	24,907	18,561	3,985	9,746	12,800	51.4
1980	28,900	20,859	4,682	10,309	15,233	52.7
1981	30,513	22,375	5,175	11,028	16,521	54.1
1982	31,525	23,786	5,424	11,405	17,804	56.5
1983	35,213	26,588	6,191	12,910	19,868	56.4
1984	36,769	28,509	6,061	14,043	20,527	55.8
1985	40,978	30,402	6,772	15,467	21,707	53.0
1986	47,105	31,750	8,468	14,764	25,454	54.0
1987	51,436	33,177	9,223	15,580	26,820	52.1
1988	56,047	35,781	10,248	17,450	28,579	51.0
1989	62,454	38,812	11,903	19,018	31,697	50.8
1990	67,769	40,215	13,523	20,593	33,144	48.9
1991	70,332	42,897	14,285	22,009	35,173	50.0
1992	75,426	48,563	15,219	24,445	39,337	52.2
1993	82,399	51,513	15,438	24,949	42,003	51.0
1994 ^p	83,692	51,828	15,490	26,268	41,049	49.0

Source: Department of Transportation, Office of Aviation Statistics, "Air Carrier Financial Statistics Quarterly" (Quarterly).

^a Includes land and construction in progress.

^p Preliminary.

AEROSPACE FACTS AND FIGURES 1995/1996

SOURCES OF OPERATING REVENUES OF U.S. AIR CARRIERS^a
DOMESTIC AND INTERNATIONAL OPERATIONS

Calendar Years 1980–1994
(Millions of Dollars)

Year	TOTAL Operating Revenues	Passenger Service ^b	Mail	Freight ^b & Air Express	Excess Baggage	Other ^c
DOMESTIC OPERATIONS						
1980	\$26,404	\$23,317	\$446	\$1,582	\$ 32	\$1,027
1981	28,788	25,504	497	1,659	36	1,091
1982	28,728	25,440	524	1,505	42	1,218
1983	31,014	27,519	516	1,602	52	1,326
1984	35,393	31,437	552	1,716	70	1,618
1985	37,629	33,343	733	1,581	78	1,895
1986	41,001	33,814	679	4,278	85	2,159
1987	45,658	37,492	704	4,952	67	2,443
1988	50,187	41,002	789	5,807	72	2,518
1989	54,314	43,670	767	5,408	70	4,399
1990	57,994	46,282	747	4,276	76	6,613
1991	56,230	44,594	734	4,487	78	6,337
1992	57,654	45,246	937	4,655	87	6,729
1993	63,233	49,289	974	5,266	91	7,612
1994 ^p	65,260	49,940	976	5,727	109	8,508
INTERNATIONAL OPERATIONS						
1980	\$ 6,543	\$ 4,984	\$175	\$1,011	\$ 25	\$ 348
1981	6,390	4,916	165	984	25	299
1982	6,435	4,959	177	990	25	283
1983	7,163	5,605	152	999	23	384
1984	7,975	6,074	158	1,169	27	546
1985	8,302	6,451	161	1,130	28	532
1986	8,621	6,551	154	1,451	28	437
1987	10,925	8,374	180	1,783	33	555
1988	13,402	10,357	183	2,150	39	672
1989	14,911	11,181	188	2,417	47	1,078
1990	17,990	13,468	223	2,602	43	1,654
1991	18,928	14,103	223	3,134	50	1,419
1992	20,486	15,664	247	2,980	47	1,547
1993	21,326	15,915	237	3,220	49	1,905
1994 ^p	22,110	16,229	212	3,449	46	2,174

Source: Department of Transportation, Office of Aviation Statistics, "Air Carrier Financial Statistics Quarterly" (Quarterly).

NOTE: Detail may not add to totals because of rounding.

a Scheduled and non-scheduled service for all certificated route air carriers. Excludes supplemental air carriers, commuters, and air taxis.

b Scheduled and charter.

c Includes subsidy, reservation cancellation fees, miscellaneous operating revenues, and other transport-related revenues.

p Preliminary.

AIR TRANSPORTATION

OPERATING EXPENSES OF U.S. AIR CARRIERS^a DOMESTIC AND INTERNATIONAL OPERATIONS

Calendar Years 1980-1994
(Millions of Dollars)

Year	TOTAL Operating Expenses	Flying Opera- tions	Mainte- nance	Passen- ger Service	Aircraft & Traffic Ser- vicing	Promo- tion and Sales	Depreci- ation & Amorti- zation	Other ^b
DOMESTIC OPERATIONS								
1980	\$26,409	\$11,029	\$2,758	\$2,329	\$ 4,051	\$3,096	\$1,560	\$1,586
1981	29,051	12,037	2,822	2,522	4,497	3,708	1,723	1,742
1982	29,478	11,529	2,709	2,668	4,665	4,160	1,876	1,869
1983	31,186	11,370	2,878	2,983	5,104	4,764	2,107	1,980
1984	33,812	12,161	3,176	3,192	5,369	5,310	2,223	2,380
1985	36,611	12,684	3,604	3,464	5,781	6,089	2,318	2,670
1986	39,934	11,368	4,475	3,793	7,680	6,820	2,652	3,171
1987	43,925	12,509	4,951	4,169	8,575	7,399	2,855	3,468
1988	47,739	13,176	5,643	4,444	9,527	8,235	2,977	3,737
1989	52,460	14,749	6,184	4,775	9,449	8,718	3,078	5,507
1990	58,983	18,166	6,921	5,220	9,094	9,102	3,273	7,207
1991	56,758	16,831	6,682	5,068	9,140	8,856	3,217	6,964
1992	58,801	17,203	6,884	5,327	9,783	8,936	3,340	7,328
1993	61,157	17,622	7,025	5,241	10,172	9,387	3,621	8,089
1994 ^p	62,974	17,701	7,169	5,307	10,362	9,782	3,750	8,902
INTERNATIONAL OPERATIONS								
1980	\$ 6,766	\$ 2,775	\$ 616	\$ 600	\$1,049	\$ 917	\$ 385	\$ 423
1981	6,574	2,757	540	583	932	945	382	435
1982	6,452	2,596	512	577	893	954	396	525
1983	6,693	2,490	548	664	936	1,162	389	505
1984	7,485	2,629	677	749	975	1,308	446	701
1985	7,984	2,738	768	852	1,069	1,414	482	662
1986	8,458	2,402	901	877	1,386	1,665	518	711
1987	10,226	2,836	1,096	1,059	1,749	2,094	533	860
1988	12,403	3,230	1,332	1,280	2,193	2,742	618	1,009
1989	14,954	3,919	1,724	1,454	2,483	3,108	746	1,520
1990	18,878	5,454	2,051	1,738	2,657	3,833	887	2,295
1991	20,185	5,636	2,152	1,861	2,831	4,602	892	2,210
1992	21,784	5,843	2,148	2,204	3,255	5,229	1,033	2,073
1993	21,964	5,928	1,967	2,175	3,072	5,339	1,077	2,406
1994 ^p	21,634	5,787	2,024	2,311	3,310	4,328	1,230	2,645

Source: Department of Transportation, Office of Aviation Statistics, "Air Carrier Financial Statistics Quarterly" (Quarterly).

NOTE: Detail may not add to totals because of rounding.

a Scheduled and non-scheduled service for all certificated route air carriers. Excludes supplemental air carriers, commuters, and air taxis.

b General and administrative and other transport-related expenses.

p Preliminary.

TRAFFIC STATISTICS
U.S. AIR CARRIER SCHEDULED SERVICE^a
Calendar Years 1964–1994

Year	Revenue Ton-Miles (Millions)			Total Available Ton-Miles (Millions)	Total Revenue Load Factor	Aircraft Revenue Miles (Millions)	Average Overall Flight Stage Length (Miles)	Average Available Seats per Aircraft Mile
	Passen- ger	Cargo ^b	Total					
1964	5,630	1,803	7,434	15,514	47.9 %	1,189	301	93
1965	6,629	2,356	8,986	18,408	48.8	1,354	322	96
1966	7,736	2,949	10,686	20,939	51.0	1,482	339	98
1967	9,561	3,475	13,036	26,968	48.3	1,834	371	101
1968	11,023	4,226	15,249	33,221	45.9	2,146	401	107
1969	12,197	4,701	16,898	38,664	43.7	2,385	443	112
1970	13,171	4,994	18,166	41,693	43.6	2,426	473	117
1971	13,565	5,120	18,685	44,139	42.3	2,378	476	125
1972	15,241	5,506	20,746	45,583	45.5	2,376	471	129
1973	16,196	6,046	22,242	49,019	45.4	2,448	477	135
1974	16,292	6,133	22,425	46,848	47.9	2,258	478	140
1975	16,281	5,905	22,186	47,254	46.9	2,241	476	143
1976	17,899	6,222	24,121	49,325	48.9	2,320	480	146
1977	19,322	6,587	25,909	52,284	49.6	2,419	490	149
1978	22,678	7,001	29,679	54,765	54.2	2,520	502	152
1979	26,202	7,189	33,390	60,844	54.9	2,791	517	154
1980	25,519	7,084	32,603	62,983	51.8	2,816	526	158
1981	24,889	7,060	31,949	61,186	52.2	2,703	519	161
1982	25,964	6,886	32,850	62,401	52.6	2,699	544	167
1983	28,183	7,573	35,756	65,385	54.7	2,809	558	169
1984	30,512	8,185	38,697	72,223	53.6	3,134	575	168
1985	33,640	7,689	41,329	76,059	54.3	3,320	569	168
1986	36,655	9,026	45,681	85,140	53.7	3,725	580	168
1987	40,453	10,016	50,469	92,209	54.7	3,988	606	167
1988	42,330	11,469	53,800	97,899	55.0	4,141	618	169
1989	43,271	12,187	55,458	100,082	55.4	4,193	633	169
1990	45,793	12,549	58,342	107,559	54.2	4,491	649	170
1991	44,795	12,130	56,925	105,599	53.9	4,416	651	169
1992	47,855	13,199	61,054	112,749	54.2	4,661	661	169
1993 ^r	48,968	14,120	63,088	115,473	54.6	4,846	669	166
1994	51,916	15,990	67,895	120,550	56.3	5,027	669	163

Source: Department of Transportation, Office of Aviation Statistics, "Air Carrier Traffic Statistics Monthly" (Monthly).

NOTE: Detail may not add to totals because of rounding.

^a Includes international and domestic operations.

^b Includes freight, air express, U.S. and foreign mail.

^r Revised.

AIR TRANSPORTATION

PASSENGER STATISTICS U.S. AIR CARRIER SCHEDULED SERVICE DOMESTIC AND INTERNATIONAL OPERATIONS Calendar Years 1980-1994

Year	Revenue Passenger Enplanements (Thousands)	Average Passenger Trip-Length (Miles)	Revenue Passenger Miles (Millions)	Available Seat Miles (Millions)	Revenue Passenger Load Factor ^a
DOMESTIC OPERATIONS					
1980	272,829	736	200,829	346,028	58.0
1981	265,304	749	198,715	346,172	57.4
1982	274,342	766	210,149	359,528	58.5
1983	296,721	765	226,909	379,150	59.8
1984	321,047	759	243,692	422,507	57.7
1985	357,109	758	270,584	445,826	60.7
1986	393,864	767	302,090	497,991	60.7
1987	416,831	779	324,637	526,958	61.6
1988	419,210	786	329,309	536,663	61.4
1989	416,331	793	329,975	530,079	62.3
1990	423,565	803	340,231	563,065	60.4
1991	412,360	806	332,566	543,638	61.2
1992	431,693	806	347,931	557,989	62.4
1993 ^r	443,172	799	354,177	571,489	62.0
1994	481,302	787	378,846	585,102	64.7
INTERNATIONAL OPERATIONS					
1980	24,074	2,258	54,363	86,507	62.8
1981	20,672	2,427	50,173	78,725	63.7
1982	19,760	2,505	49,495	80,591	61.4
1983	21,917	2,506	54,920	85,388	64.3
1984	23,636	2,599	61,424	92,817	66.2
1985	24,913	2,642	65,819	101,963	64.6
1986	25,082	2,570	64,456	109,445	58.9
1987	30,847	2,588	79,834	121,763	65.6
1988	35,404	2,655	93,992	140,140	67.1
1989	37,361	2,750	102,739	154,297	66.6
1990	41,995	2,803	117,695	170,310	69.1
1991	39,941	2,889	115,389	171,561	67.3
1992	43,415	3,009	130,622	194,784	67.1
1993	45,348 ^r	2,988	135,508 ^r	200,151	67.7
1994	47,074	2,981	140,315	198,738	70.6

Source: Department of Transportation, Office of Aviation Statistics, "Air Carrier Traffic Statistics Monthly" (Monthly).

a Revenue passenger miles as a percent of available seat miles.

r Revised.

TURBINE-ENGINEED AIRCRAFT IN THE WORLD AIRLINE FLEET

(By Model, 1990-1994)

	1990	1991	1992	1993	1994
TOTAL AIRCRAFT IN SERVICE	14,651	15,181	16,100	17,284	18,342
Turbojets—TOTAL	<u>9,426</u>	<u>9,819</u>	<u>10,504</u>	<u>11,345</u>	<u>12,000</u>
Aerospatiale SE-210 Caravelle	49	38	34	29	28
Aerospatiale SN-601 Corvette	7	2	—	—	—
Airbus A300	327	331	346	374	391
Airbus A310	180	193	207	222	217
Airbus A320	130	247	354	413	463
Airbus A321	—	—	—	—	17
Airbus A330	—	—	—	1	10
Airbus A340	—	—	—	20	44
Antonov 124	—	7	7	13	13
Avro RJ-70/85/100	(a)	(a)	(a)	12	30
B.Ae./Aerospatiale Concorde	14	14	14	14	13
B.Ae. 146	144 ^a	166 ^a	173 ^a	185	196
B.Ae. One-Eleven	132	146	143	121	120
B.Ae. Trident	25	32	9	9	9
B.Ae. (HS) 125	16	17	19	23	22
Beech 400 Beechjet	—	1	3	2	2
Boeing 707/720	210	198	176	151	151
Boeing 727	1,648	1,515	1,457	1,390	1,373
Boeing 737	1,836	2,019	2,189	2,363	2,476
Boeing 747	775	806	865	918	957
Boeing 757	324	380	497	566	629
Boeing 767	345	399	462	515	550
Canadair CL-601 Challenger	—	2	2	4	2
Canadair Regional Jet	—	—	2	23	49
Cessna Citation I/II/III	43	44	35	31	36
Convair 880/990	2	—	1	1	1
Dassault Falcon 10/20/50	39	43	41	46	60
Dassault Mercure	11	11	8	8	5
Fokker F-28 Fellowship	199	197	191	190	185
Fokker 100	58	93	150	220	253
Gulfstream II/III G-1159	15	16	17	17	16
Ilyushin IL-62	56	39	33	49	84
Ilyushin IL-76	60	61	64	83	154
Ilyushin IL-86	—	—	—	12	37
Ilyushin IL-96	—	—	—	—	5
Israel Aircraft 1121/1124	2	2	3	12	13
Learjet	37	34	37	28	39
Lockheed L-1011 Tristar	228	227	214	213	208
Lockheed L-1329 Jetstar	6	5	4	4	4
MBB Hansa HFB-320	—	—	—	—	3
McDonnell Douglas DC-8	253	257	261	264	270
McDonnell Douglas DC-9	847	741	741	767	791
McDonnell Douglas DC-10	365	361	361	354	347
McDonnell Douglas MD-11	3	36	73	107	127
McDonnell Douglas MD-80	799	908	1,032	1,067	989
Rockwell Sabreliner 60	3	3	2	1	—
Tupolev Tu-134	74	54	82	138	155
Tupolev Tu-154	111	156	131	225	283
Tupolev Tu-204	—	—	—	—	5
Yakovlev Yak-40/42	55	48	64	140	168

(Continued on next page)

AIR TRANSPORTATION

TURBINE-ENGINEED AIRCRAFT IN THE WORLD AIRLINE FLEET

(By Model, 1990-1994, continued)

	1990	1991	1992	1993	1994
Turbine-Powered					
Helicopters—Total	<u>176</u>	<u>188</u>	<u>176</u>	<u>242</u>	<u>295</u>
Aerospatiale SA-316 Alouette III	4	4	—	—	—
Aerospatiale SA-318 Alouette II	3	3	2	1	1
Aerospatiale SA-319 Alouette III					
Astazou	4	4	2	—	—
Aerospatiale SA-341 Gazelle ..	—	1	1	—	—
Aerospatiale (Nurtanio)					
SA-330 Puma	16	18	18	28	17
Aerospatiale AS-332 Super Puma	5	5	5	5	16
Aerospatiale AS-350 Ecureuil/					
Astar	10	10	7	3	4
Aerospatiale AS-355 Ecureuil 2/					
Twinstar	4	4	4	8	8
Aerospatiale SA-365 Dauphin II	10	10	10	13	17
Agusta A109	—	3	3	—	1
Bell (Agusta/Fuji) 204	6	5	3	3	2
Bell 205	2	2	2	2	1
Bell 206 Jetranger/Longranger ..	26	33	33	36	54
Bell 212	15	15	16	20	21
Bell 214	—	—	—	—	4
Bell 222 UT	—	—	—	—	1
Bell 412	3	4	6	17	16
Hughes (Kawasaki) 500/369D ..	1	1	—	—	—
MBB/Nurtanio Bo.105	33	33	33	41	41
Mil Mi-8	—	—	—	—	17
Sikorsky S-55T	5	5	5	5	5
Sikorsky S-58T	5	4	4	4	1
Sikorsky S-61	10	10	10	33	42
Sikorsky S-62	—	—	—	—	1
Sikorsky S-76	11	11	12	23	25
Westland 30	3	3	—	—	—

(Continued on next page)

AEROSPACE FACTS AND FIGURES 1995/1996

TURBINE-ENGINEED AIRCRAFT IN THE WORLD AIRLINE FLEET

(By Model, 1990-1994, continued)

	1990	1991	1992	1993	1994
Turboprops—TOTAL	5,049	5,174	5,420	5,697	6,052
Aerospatiale N.262/Mohawk 298	16	14	15	10	12
Aerospatiale/Aeritalia ATR 42 ..	178	210	227	242	245
Aerospatiale/Aeritalia ATR 72 ..	17	48	76	103	138
Airtech CN-235	18	24	23	24	24
Antonov An-12	19	20	19	25	23
Antonov An-22	—	—	2	2	2
Antonov An-24/26/28/30/32	246	216	171	258	307
B.Ae. ATP	31	41	46	50	53
B.Ae. Vanguard	5	4	4	3	2
B.Ae. Viscount	33	27	25	23	25
B.Ae. (HP-137) Jetstream 31 ...	277	205	309	296	306
B.Ae. Jetstream 41	—	—	2	18	30
B.Ae. HS-748	139	130	123	115	122
Beech 18 Turbo	24	20	17	1	21
Beech 90 King Air	26	28	30	38	30
Beech 99	140	122	130	139	140
Beech 100 King Air	23	24	31	38	44
Beech 200/300 Super King Air ..	78	76	87	94	101
Beech 1300	14	7	2	4	5
Beech 1900C/D	171	191	224	251	291
Bristol 175 Britannia	6	6	5	5	3
Canadair CL-44	13	11	8	8	4
CASA/Nurtanio C-212 Aviocar ..	104	109	104	102	107
Cessna 208 Caravan I	287	312	307	312	380
Cessna F406 Caravan II	19	21	23	19	21
Cessna 425/441 Conquest I/II ...	8	4	4	5	7
Convair 580/600/640	108	92	99	98	110
DHC-2/3 Turbo Beaver/Otter ...	4	4	4	6	9
DHC-5 Buffalo	1	1	1	1	1
DHC-6 Twin Otter	432	428	437	419	405
DHC-7 Dash 7	94	79	80	84	73
DHC-8 Dash 8	214	254	307	341	358
Dornier DO-228	113	96	112	116	126
Dornier DO-328	—	—	—	3	15
Douglas DC-3T Turbo Express ..	—	1	—	—	2
Embraer EMB-110 Bandeirante ..	200	174	181	189	188
Embraer EMB-120 Brasilia	201	225	255	267	276
Fokker/Fairchild					
F-27/FH-227 Friendship	401	389	378	354	348
Fokker 50	101	121	134	152	164

(Continued on next page)

AIR TRANSPORTATION

TURBINE-ENGINEED AIRCRAFT IN THE WORLD AIRLINE FLEET

(By Model, 1990-1994, continued)

	1990	1991	1992	1993	1994
Turboprops (continued)					
GAF Nomad	9	8	12	11	22
Grumman G-21 Turbo Goose ..	—	1	1	1	1
Grumman G-73 Turbo Mallard ..	9	4	5	6	5
Grumman G-159 Gulfstream I ..	34	33	31	33	41
Handley Page Herald	17	17	16	15	16
Harbin Y-12 II	2	5	26	33	40
IAI Arava	3	1	1	1	2
Ilyushin IL-18	48	42	31	29	33
LET L-410	—	17	19	25	59
Lockheed L-188 Electra	74	67	65	65	59
Lockheed L-100/L-382 Hercules	56	54	56	53	54
Mitsubishi MU-2B	5	8	5	6	7
Nihon AMC YS-11	97	94	92	85	85
Pilatus Britten-Norman BN-2T					
Turbo Islander	2	3	2	2	2
Piper PA-31T/42 Cheyenne	29	25	19	19	17
Piper T-1040	15	12	13	11	10
PZL (Antonov) An-28	—	—	3	3	1
Rockwell Turbo Commander ...	14	15	12	11	9
Saab SF-340A/B	206	265	312	347	347
Saab 2000	—	—	—	—	5
Shorts SC-5 Belfast	5	5	5	4	2
Shorts SC-7 Skyliner/Skyvan ...	16	25	24	25	31
Shorts 330	64	51	55	56	62
Shorts 360	150	139	147	148	108
Swearingen Merlin	41	36	36	49	49
Swearingen Metro	249	338	357	377	396
Transall C-160	8	8	8	6	6
Xian (Antonov) Y-7	31	67	65	61	65
TOTAL AIRCRAFT IN SERVICE ..	14,651	15,181	16,100	17,284	18,347
Number Manufactured in U.S. ..	9,333	9,517	10,064	10,523	10,913
Percent Manufactured in U.S. ..	63.7 %	62.7 %	62.5 %	60.9 %	59.5 %
Turbojet Aircraft in Service	9,426	9,819	10,504	11,345	12,000
Number Manufactured in U.S. ..	7,737	7,950	8,427	8,759	8,949
Percent Manufactured in U.S. ..	82.1 %	81.0 %	80.2 %	77.2 %	74.6 %
Turboprop Aircraft in Service ...	5,049	5,174	5,420	5,697	6,052
Number Manufactured in U.S. ..	1,519	1,483	1,549	1,624	1,793
Percent Manufactured in U.S. ..	30.1 %	28.7 %	28.6 %	28.5 %	29.6 %
Turbine-Powered Helicopters					
In Service	176	188	176	242	295
Number Manufactured in U.S. ..	77	84	88	140	171
Percent Manufactured in U.S. ..	43.8 %	44.7 %	50.0 %	57.9 %	58.0 %

Source: Exxon International Company, "Air World Survey," compiled by Aviation Data Service, Inc. (Annually).

NOTE: The "Air World Survey" covers the world's airlines with the exception of Aeroflot and covers aircraft in service as of December 31 and as of March 31 prior to 1991. Excludes air taxi operators.

a RJ-70 combined with B.Ae. 146.

**PERCENT OF CIVIL TURBOJET ENGINE MARKET
BY MANUFACTURER AND AIRCRAFT MODEL**

as of December 1994

Aircraft Manufacturer and Model	Total Installed Engines	Engine Manufacturers					
		P&W	GE	RR	CFM	IAE	Other
TOTAL ENGINES	36,196	15,704	4,070	3,404	4,202	354	8,462
PERCENT SHARE	100.0%	43.4%	11.2%	9.4%	11.6%	1.0%	23.4%
Airbus A300 ^a	276	19%	81%	—%	—%	—%	—%
Airbus A300B4-200	274	11	89	—	—	—	—
Airbus A300B4-600R ...	266	51	49	—	—	—	—
Airbus A310 ^a	160	35	65	—	—	—	—
Airbus A310-300	292	40	60	—	—	—	—
Airbus A320 ^a	36	—	—	—	100	—	—
Airbus A320-200	916	—	—	—	63	37	—
Airbus A321	32	—	—	—	44	56	—
Airbus A330	14	—	100	—	—	—	—
Airbus A340	164	—	—	—	100	—	—
Antonov AN-72	12	—	—	—	—	—	100
Antonov AN-74	6	—	—	—	—	—	100
Antonov AN-124	144	—	—	—	—	—	100
AS Corvette	8	100	—	—	—	—	—
AS Caravelle	58	69	—	31	—	—	—
AS/BaE Concorde	52	—	—	100	—	—	—
Avro Int'l RJ	120	—	—	—	—	—	100
BaE 1-11	288	—	—	100	—	—	—
BaE 146	784	—	—	—	—	—	100
BaE HS Trident	27	—	—	100	—	—	—
BaE HS 125	48	4	—	33	—	—	63
Beech 400 Beechjet	4	100	—	—	—	—	—
Boeing B-707 ^a	156	95	—	5	—	—	—
Boeing B-707-320C	544	100	—	—	—	—	—
Boeing B-720	36	100	—	—	—	—	—
Boeing B-727 series ^a ...	1,179	94	—	6	—	—	—
Boeing B-727 ^b	393	100	—	—	—	—	—
Boeing B-727-200 ^b	561	100	—	—	—	—	—
Boeing B-727-200 ADV .	2,370	100	—	—	—	—	—
Boeing B-737 ^a	286	80	—	—	20	—	—
Boeing B-737-200	336	100	—	—	—	—	—
Boeing B-737-200 ADV .	1,424	100	—	—	—	—	—
Boeing B-737-300	1,684	—	—	—	100	—	—
Boeing B-737-400	742	—	—	—	100	—	—
Boeing B-737-500	550	—	—	—	100	—	—
Boeing B-747 ^a	1,468	46	45	10	—	—	—
Boeing B-747-100	592	92	—	8	—	—	—
Boeing B-747-200B	788	69	16	15	—	—	—
Boeing B-747-400	1,016	39	33	29	—	—	—
Boeing B-757 ^a	152	47	—	53	—	—	—
Boeing B-757-200	1,142	44	—	56	—	—	—
Boeing B-767 ^a	352	30	70	—	—	—	—
Boeing B-767-200ER ...	248	49	51	—	—	—	—
Boeing B-767-300ER ...	508	39	52	9	—	—	—

(Continued on next page)

AIR TRANSPORTATION

PERCENT OF CIVIL TURBOJET ENGINE MARKET BY MANUFACTURER AND AIRCRAFT MODEL (continued)

as of December 1994

Aircraft Manufacturer and Model	Total Installed Engines	Engine Manufacturers					
		P&W	GE	RR	CFM	IAE	Other
Canadair CL 600/601 ...	4	—%	50 %	—%	—%	—%	50 %
Canadair Regional Jet ...	98	—	100	—	—	—	—
Cessna 500s	78	100	—	—	—	—	—
Cessna 650	14	—	—	—	—	—	100
Convair CV 880/990 ...	8	—	100	—	—	—	—
Dassault Falcon	144	—	86	—	—	—	14
Dassault Mercure 100 ..	10	100	—	—	—	—	—
Fokker F-28 ^a	168	—	—	100	—	—	—
Fokker F-28-4000	210	—	—	100	—	—	—
Fokker 100	504	—	—	100	—	—	—
Gulfstream II/III/IV	32	—	—	100	—	—	—
IAI 1124	28	—	—	—	—	—	93
Ilyushin IL-62 ^a	292	—	—	—	—	—	100
Ilyushin IL-62M	592	—	—	—	—	—	100
Ilyushin IL-76 ^a	964	—	—	—	—	—	100
Ilyushin IL-76MD	608	—	—	—	—	—	100
Ilyushin IL-86	348	—	—	—	—	—	100
Ilyushin IL-96	36	—	—	—	—	—	100
Learjet 23/24/25	36	—	100	—	—	—	—
Learjet 35/36/55	54	—	—	—	—	—	100
Lockheed JetStar	24	83	—	—	—	—	17
Lockheed L-1011	657	—	—	100	—	—	—
MBB Hansa Jet	6	—	100	—	—	—	—
Douglas DC-8	1,096	66	—	—	34	—	—
Douglas DC-9 ^a	598	100	—	—	—	—	—
Douglas DC-9-30	1,034	100	—	—	—	—	—
Douglas DC-10 ^a	309	40	60	—	—	—	—
Douglas DC-10-10	321	—	100	—	—	—	—
Douglas DC-10-30	432	—	100	—	—	—	—
MDC MD-11 series ^a	66	14	86	—	—	—	—
MDC MD-11 ^b	315	49	51	—	—	—	—
MDC MD-80s ^a	146	100	—	—	—	—	—
MDC MD-81	242	100	—	—	—	—	—
MDC MD-82	1,086	100	—	—	—	—	—
MDC MD-83	418	100	—	—	—	—	—
MDC MD-88	306	100	—	—	—	—	—
Rockwell Sabreliner	2	100	—	—	—	—	—
Tupolev TU-134 ^a	244	—	—	—	—	—	100
Tupolev TU-134A	828	—	—	—	—	—	100
Tupolev TU-154 ^a	771	—	—	—	—	—	100
Tupolev TU-154B2	933	—	—	—	—	—	100
Tupolev TU-154M	525	—	—	—	—	—	100
Tupolev TU-204	20	—	—	—	—	—	100
Yakovlev YAK-40 series ^a .	3	—	—	—	—	—	100
Yakovlev YAK-40 ^b	759	—	—	—	—	—	100
Yakovlev YAK-42	321	—	—	—	—	—	100

Source: Aerospace Industries Association, based on data from Aviation Data Service.

^a Data for major (100 or more aircraft) series excluded and reported separately.

^b Series bearing same designation as model number, but qualifies for separate reporting as a major series.

KEY: AS = Aerospaiale; BAe = British Aerospace; CFM = CFM International; GE = General Electric;

IAE = International Aero Engines; IAI = Israel Aircraft Industries; MBB = Messerschmitt Bolkow Blohm;

MDC = McDonnell Douglas; P&W = Pratt & Whitney; RR = Rolls-Royce.

AEROSPACE FACTS AND FIGURES 1995/1996

ACTIVE^a U.S. AIR CARRIER FLEET
By Type of Aircraft, Number of Engines and Model
Active as of December 1990–1994

	1990	1991	1992	1993	1994
TOTAL	6,083	6,054	7,320	7,297 ^r	7,370
Turbojets—TOTAL	4,148	4,167	4,446	4,584	4,636
Four-Engine—TOTAL	<u>432</u>	<u>410</u>	<u>389</u>	<u>410</u>	<u>420</u>
Boeing 707	25	27	20	13	16
Boeing 747	190	184	178	183	186
B.Ae. 146	44	17	23	20	15
McDonnell Douglas DC-8	173	182	168	194	203
Three-Engine—TOTAL	<u>1,438</u>	<u>1,376</u>	<u>1,381</u>	<u>1,292</u>	<u>1,236</u>
Boeing 727	1,152	1,073	1,029	953	906
Lockheed L-1011	101	100	113	100	86
McDonnell Douglas DC-10/MD-11	185	203	239	239	244
Twin-Engine—TOTAL	<u>2,278</u>	<u>2,381</u>	<u>2,676</u>	<u>2,882</u>	<u>2,980</u>
Airbus A-300	67	63	58	58	63
Airbus A-310	21	42	21	27	17
Airbus A-320	10	35	54	75	86
Boeing 737	812	835	915	1,013	1,012
Boeing 757	199	234	328	375	395
Boeing 767	120	136	170	187	194
B.Ae. BAC-111	3	1	—	—	—
Canadair CL-600	—	—	—	5 ^r	—
Cessna C500/C501	—	—	2	3	—
Cessna C550	7	—	—	—	—
Cessna C650	—	—	1	—	—
Dassault Falcon	—	2	—	—	—
Fokker F-28	68	75	117	129	148
Grumman G-1159	1	3	1	—	—
Gulfstream GIII	—	—	—	—	2
Israel Aircraft 1121	—	—	1	—	—
Learjet LR-25	1	2	3	—	—
Learjet LR-35	2	—	3	1	2
McDonnell Douglas DC-9/MD-80	967	953	1,002	1,009	1,061
Turboprops—TOTAL	1,595	1,598	1,894	1,868	1,782
Four-Engine—TOTAL	<u>88</u>	<u>75</u>	<u>107</u>	<u>102</u>	<u>87</u>
Canadair CL44D	5	—	5	1	1
De Havilland DHC-7	40	33	40	38	27
Lockheed 188 Electra	24	24	44	45	41
Lockheed 382	19	18	18	18	18
Twin-Engine—TOTAL	<u>1,507</u>	<u>1,523</u>	<u>1,787</u>	<u>1,751</u>	<u>1,695</u>
Beech BE65	—	—	16	—	—
Beech BE90	—	—	1	3	1
Beech BE95	—	—	—	—	1
Beech BE99	54	32	39	29	41
Beech BE100	2	1	4	1	1

(Continued on next page)

AIR TRANSPORTATION

ACTIVE^a U.S. AIR CARRIER FLEET (Continued)

By Type of Aircraft, Number of Engines, and Model
Active as of December 1990–1994

	1990	1991	1992	1993	1994
Twin-Engine (continued)					
Beech BE200	16	8	11	9	7
Beech BE1900	147	167	231	251	281
B.Ae. ATP	4	10	10	9	9
B.Ae. Jetstream	222	214	240	247	237
CASA C212 Aviocar	16	13	—	1	1
Cessna C425	—	—	1	2	—
Cessna C441	2	2	2	—	2
Convair 580/600/640	33	37	19	16	29
DeHavilland DHC-6	67	69	74	67	53
DeHavilland DHC-8	74	81	115	120	142
Dornier DO228	32	31	13	13	7
Embraer EMB110	48	23	16	14	15
Embraer EMB120	156	167	195	217	223
Fairchild/Fokker F-27/FH-227 ...	58	50	53	50	37
Grumman G-73	7	4	5	—	5
Grumman G-159	7	2	1	—	—
McKinnon G-21	—	—	—	2	2
Mitsubishi MU-2	1	1	10	—	—
Nihon YS-11	21	22	31	25	25
Nord ND-262/STC-262	1	—	1	—	—
Piper PA31T	8	8	99	79	1
Piper 42	—	1	1	—	1
Saab-Fairchild SF340A	109	153	195	209	202
Shorts SC-7	—	2	6	6	5
Shorts SD-3/5D-330	103	93	88	74	63
SNAIS ATR-42	77	101	108	108	111
SNAIS ATR-72	—	—	14	27	44
Swearingen SA-226	22	31	14	14	11
Swearingen SA-227	218	200	174	158	138
Single-Engine—TOTAL	NA	NA	NA	15	—
Piston-Engine—TOTAL	329	283	847	721	824
Four-Engine—TOTAL	31	26	20	22	19
Douglas DC-6	30	25	19	21	18
Douglas DC-7	1	1	1	1	1
Three-Engine—TOTAL	6	5	5	—	5
Pilatus Britten-Norman BN2A-MK-3 Turbo Islander ...	6	5	5	—	5
Twin-Engine—TOTAL	292	252	415	293	335
Single-Engine—TOTAL	NA	NA	407	406	465
Helicopters—TOTAL	11	6	133	124	128

Source: Federal Aviation Administration, "FAA Statistical Handbook of Aviation" (Annually).

NOTE: Effective 1978, includes certificated route air carriers, supplemental air carriers (charters), multi-engine aircraft in passenger service of commuters, and all aircraft over 12,500 pounds operated by air taxis, commercial operators, and travel clubs.

^a "Active aircraft" equals the average number of aircraft reported in operation during the last quarter of the year.

NA Not Available.

r Revised.

AEROSPACE FACTS AND FIGURES 1995/1996

JET FUEL COSTS AND CONSUMPTION BY U.S. AIR CARRIERS^a
Calendar Years 1977-1994

Year	Gallons Consumed (Millions)	Total Cost (Millions)	Cost Per Gallon (Cents)	Cost Index (1982 = 100)	Cost of Fuel as Percent of Cash Operating Expenses
1977	10,282.0	\$ 3,729.8	36.3¢	37.0	20.1 %
1978	10,627.1	4,178.2	39.3	40.1	19.7
1979	11,278.1	6,503.0	57.7	58.8	24.4
1980	10,874.0	9,769.5	89.8	91.6	29.7
1981	10,087.8	10,498.0	104.1	106.1	29.3
1982	9,942.1	9,755.2	98.1	100.0	27.4 ^r
1983	10,214.4	9,073.1	88.8	90.5	24.5
1984	11,050.4	9,361.7	84.7	86.3	23.8
1985	11,675.1	9,326.7	79.9	81.4	22.2
1986	12,643.0	6,995.8	55.3	56.4	16.3
1987	13,629.5	7,593.8	55.7	56.8	16.0
1988	14,204.8	7,557.2	53.2	54.2	14.4
1989	14,103.9	8,472.7	60.1	61.2	14.9
1990	14,841.1	11,465.2	77.3	78.7	17.6
1991	13,798.4	9,329.5	67.6	68.9	14.8
1992	14,172.0	8,907.9	62.9	64.1	13.5
1993 ^r	14,165.0	8,452.9	59.7	60.8	12.7
1994	14,153.4	7,722.7	54.6	55.6	11.7

Source: Air Transport Association of America, "Airline Cost Index" (Quarterly).

^a Majors and Nationals excluding Air Florida, Capitol, Transamerica, and World.

^r Revised.

AIR TRANSPORTATION

U.S. CIVIL AND JOINT-USE AIRCRAFT FACILITIES^a BY TYPE AND STATE As of December 31, 1994

State	TOTAL ^a	Public ^b	Paved	Lighted	State	TOTAL ^a	Public ^b	Paved	Lighted
Alabama	236	100	152	99	Nevada	127	61	62	33
Alaska	545	408	64	155	New Hampshire .	94	27	50	18
Arizona	278	75	159	73	New Jersey	352	54	155	49
Arkansas	254	101	171	92	New Mexico	171	70	82	48
California	946	267	680	247	New York	540	169	219	131
Colorado	396	85	181	85	North Carolina ..	355	118	155	114
Connecticut ..	138	26	87	27	North Dakota ...	438	96	88	97
Delaware	36	10	13	12	Ohio	741	189	290	187
Dist. of Col. ..	17	2	16	4	Oklahoma	416	156	217	133
Florida	783	131	338	145	Oregon	397	102	161	77
Georgia	405	111	197	116	Pennsylvania	783	149	325	138
Hawaii	48	13	40	14	Rhode Island	26	8	19	7
Idaho	220	120	79	47	South Carolina ..	164	69	80	64
Illinois	900	135	286	161	South Dakota ...	157	75	67	74
Indiana	600	113	170	119	Tennessee	251	85	149	86
Iowa	298	123	171	140	Texas	1,671	391	825	420
Kansas	387	148	137	131	Utah	124	47	83	45
Kentucky	182	68	112	58	Vermont	73	16	17	11
Louisiana	433	89	250	78	Virginia	372	69	160	85
Maine	152	74	52	33	Washington	427	133	213	134
Maryland	203	41	79	48	West Virginia ...	107	40	64	32
Massachusetts	229	52	125	43	Wisconsin	490	140	178	139
Michigan	470	228	195	182	Wyoming	103	41	53	37
Minnesota	478	159	145	140	50 States—Total	18,267	5,433	8,181	4,807
Mississippi ...	221	84	126	81	Puerto Rico	31	11	27	10
Missouri	494	146	228	140	Virgin Islands ...	9	2	3	2
Montana	237	122	102	87	S. Pacific ^c	36	28	19	11
Nebraska	302	97	114	90	TOTAL	18,343	5,474	8,230	4,830

FACILITIES BY CLASS

Class	Total ^a	Public ^b	Private
Airports	13,202	5,181	8,021
Heliports	4,617	92	4,525
Stolports	81	5	76
Seaplane Bases	443	196	247
Total Facilities	18,343	5,474	12,869

Source: Federal Aviation Administration, "FAA Statistical Handbook of Aviation" (Annually).

a Included in these data are facilities having joint civil-military use.

b "Public" refers to use, whether publicly or privately owned.

c American Samoa, Guam, and Trust Territories.

HELIPORTS/HELIPADS^a IN THE UNITED STATES
BY STATE
As of 1994

State	Total Helipads in State	Private Use		Public Use	
		Heliports & Helistops	Helipads at Airports	Heliports & Helistops	Helipads at Airports
Alabama	69	67	—	1	1
Alaska	27	15	1	8	3
Arizona	95	91	—	—	4
Arkansas	76	73	1	—	2
California	402	384	3	—	15
Colorado	170	166	1	—	3
Connecticut	81	74	1	2	4
Delaware	13	11	—	1	1
District of Columbia ...	19	19	—	—	—
Florida	253	250	1	1	1
Georgia	105	104	—	—	1
Hawaii	17	15	—	—	2
Idaho	30	28	1	—	1
Illinois	239	225	3	11	—
Indiana	113	107	3	2	1
Iowa	80	79	—	—	1
Kansas	35	31	—	—	4
Kentucky	43	43	—	—	—
Louisiana	224	217	2	4	1
Maine	16	15	—	—	1
Maryland	55	50	1	3	1
Massachusetts	131	126	—	2	3
Michigan	75	73	1	1	—
Minnesota	42	37	1	—	4
Mississippi	43	43	—	—	—
Missouri	116	108	1	4	3
Montana	21	19	—	2	—
Nebraska	28	26	1	—	1
Nevada	25	25	—	—	—
New Hampshire	42	41	—	—	1

(Continued on next page)

AIR TRANSPORTATION

**HELIPORTS/HELIPADS^a IN THE UNITED STATES
BY STATE (Continued)**

As of 1994

State	Total Helipads in State	Private Use		Public Use	
		Heliports & Helistops	Helipads at Airports	Heliports & Helistops	Helipads at Airports
New Jersey	233	228	—	3	2
New Mexico	21	18	1	2	—
New York	137	125	—	9	3
North Carolina	61	59	—	2	—
North Dakota	13	13	—	—	—
Ohio	201	180	1	16	4
Oklahoma	86	82	—	4	—
Oregon	88	83	2	3	—
Pennsylvania	284	273	1	8	2
Rhode Island	16	15	—	1	—
South Carolina	27	25	—	—	2
South Dakota	12	12	—	—	—
Tennessee	82	76	2	3	1
Texas	413	394	3	10	6
Utah	39	36	—	—	3
Vermont	17	17	—	—	—
Virginia	115	111	—	—	4
Washington	103	97	3	1	2
West Virginia	32	29	—	—	3
Wisconsin	68	68	—	—	—
Wyoming	16	15	—	—	1
Total U.S.	4,749	4,518	35	104	92

Source: Helicopter Association International, "1995 Helicopter Annual" (Annually).

NOTE: 95.9 percent of all U.S. helicopter landing areas are private, while 4.1 percent are public.

a Excludes temporary heliports, offshore heliports, and infrequently used helicopter landing sites.

AEROSPACE FACTS AND FIGURES 1995/1996

ACTIVE U.S. CIVIL AIRCRAFT^a

As of December 31, 1963–1993
(in thousands)

Year	TOTAL	Air Carrier ^b	General Aviation Aircraft					
			TOTAL	Fixed-Wing Aircraft			Rotor- craft ^c	Other ^d
				Multi- Engine	Single-Engine			
					4-place & over	3-place & less		
1963	87.2	2.079	85.1	9.7	42.6	31.0	1.2	0.6
1964	90.8	2.057	88.7	10.6	45.8	30.4	1.3	0.6
1965	97.6	2.125	95.4	12.0	49.8	31.4	1.5	0.8
1966	107.0	2.272	104.7	13.5	53.0	35.7	1.6	0.9
1967	116.6	2.452	114.2	14.7	56.9	39.7	1.9	1.1
1968	126.8	2.586	124.2	16.8	61.0	42.8	2.4	1.3
1969	133.5	2.690	130.8	18.1	63.7	45.0	2.6	1.4
1970	134.4	2.679	131.7	18.3	64.8	44.9	2.3	1.6
1971	133.8	2.642	131.1	17.9	64.5	44.8	2.4	1.7
1972	147.6	2.583	145.0	19.8	71.0	49.4	2.8	1.9
1973	156.1	2.599	153.5	21.9	74.8	51.4	3.1	2.3
1974	164.0	2.472	161.5	23.4	78.9	53.0	3.6	2.5
1975	171.0	2.495	168.5	24.6	82.6	54.4	4.1	2.8
1976	180.8	2.492	178.3	25.7	88.2	56.7	4.5	3.2
1977	186.8	2.473	184.3	26.7	92.0	57.3	4.7	3.6
1978	201.3	2.545	198.8	28.8	101.5	59.2	5.3	4.0
1979	213.9	3.609	210.3	31.3	106.0	62.4	5.9	4.8
1980	214.9	3.808	211.0	31.7	107.9	60.5	6.0	4.9
1981	217.2	3.973	213.2	33.3	108.0	59.9	7.0	5.0
1982	213.9	4.027	209.8	34.2	106.5	57.7	6.2	6.2
1983	217.5	4.203	213.3	34.6	107.1	59.1	6.5	5.9
1984	225.3	4.370	220.9	35.6	109.9	62.0	7.1	6.3
1985	201.2	4.678	196.5	31.3	98.5	54.9	6.0	5.8
1986	210.2	4.909	205.3	32.0	102.0	58.3	6.5	6.5
1987	208.0	5.253	202.7	30.8	100.4	59.3	5.9	6.3
1988	201.9	5.660	196.2	30.1	98.1	55.6	6.0	6.4
1989	210.8	5.778	205.0	31.9	100.5	58.4	7.0	7.2
1990	204.1	6.083	198.0	30.5	97.6	56.4	6.9	6.6
1991	204.6	6.054	198.5	30.5	98.5	55.7	6.3	7.6
1992	191.7	7.320	184.4	27.3	91.0	52.5	5.8	7.8
1993	183.3	7.297	176.0	23.9	89.4	41.3	4.5	16.2

Source: Federal Aviation Administration, "FAA Statistical Handbook of Aviation" (Annually).

a "Active aircraft" must have a current U.S. registration and have flown during the calendar year. Prior to 1971, only a current U.S. registration was necessary.

b Effective 1978, includes certificated route air carriers, supplemental air carriers (charters), multi-engine aircraft in commuter passenger service, and all aircraft over 12,500 pounds operated by air taxis, commercial operators, and travel clubs.

c Includes autogiros; excludes air carrier helicopters.

d Includes gliders, dirigibles, balloons, and experimental aircraft.

AIR TRANSPORTATION

ACTIVE U.S. CIVIL AIRCRAFT BY PRIMARY USE AND TYPE OF AIRCRAFT

As of December 31, 1993

Primary Use ^a	TOTAL	Fixed-Wing			Rotor-craft ^b	Other ^c
		Turbojet	Turboprop	Piston		
TOTAL—ALL AIRCRAFT ...	183,303	8,443	6,227	147,815	4,634	16,185
Air Carrier—TOTAL	7,297	4,584	1,868	721	124	—
Large	5,319	4,575	670	74	—	—
Small	1,978	9	1,198	647	124	—
General Aviation—TOTAL .	176,006	3,859	4,359	147,094	4,510	16,185
Executive	9,855	3,242	2,540	3,388	508	179
Business	27,811	106	380	26,270	318	738
Air Taxi ^d	3,764	294	552	2,338	580	—
Instructional	15,608	11	53	14,654	430	458
Personal	102,146	65	326	89,053	487	12,215
Aerial Application	4,979	—	288	4,154	470	67
Aerial Observation	4,804	2	13	3,585	969	235
Sight Seeing	1,626	—	5	551	241	828
External Load	147	—	—	—	144	3
Other Work	1,039	—	12	774	29	224
Other	4,228	140	190	2,326	335	1,238

Source: Federal Aviation Administration, "FAA Statistical Handbook of Aviation" (Annually) and General Aviation Manufacturers Association, "General Aviation Statistical Databook" (Annually).

NOTE: Detail may not add to totals because of estimating procedures.

a Definitions of "primary use" categories available in Glossary of "FAA Statistical Handbook."

b Includes helicopters and autogiros.

c Includes gliders, dirigibles, and balloons.

d Limited to Air taxis under 12,500 pounds. Otherwise, aircraft included in "Air Carrier."

U.S. GENERAL AVIATION
TYPE OF AIRCRAFT AND HOURS FLOWN
Calendar Years 1989–1993

	1989	1990	1991	1992	1993 ^a
Number of Active Aircraft by Type (in thousands)					
All Aircraft—TOTAL	<u>205.0</u>	<u>198.0</u>	<u>198.5</u>	<u>184.4</u>	<u>176.0</u>
Fixed-Wing:	190.8	184.5	184.6	170.8	155.3
Piston:	180.8	175.2	175.3	162.1	147.1
Single-Engine	158.9	154.0	154.1	143.6	130.7
Twin-Engine	21.8	21.1	21.1	18.5	16.4
Other	0.1	0.1	0.1	0.1	0.0
Turboprop:	5.9	5.3	4.9	4.7	4.4
Twin-Engine	5.7	4.9	4.4	4.1	3.6
Other	0.2	0.4	0.5	0.6	0.8
Turbojet:	4.1	4.1	4.4	4.0	3.9
Twin-Engine	3.7	3.7	4.1	3.8	3.7
Other	0.4	0.4	0.3	0.2	0.2
Rotorcraft:	7.0	6.9	6.3	5.8	4.5
Piston	3.0	3.2	2.5	2.2	1.6
Turbine	4.0	3.7	3.8	3.5	2.9
Balloons, Dirigibles, and Gliders ..	7.2	6.6	6.7	7.8	5.2
Experimental	NA	NA	NA	NA	10.9

Hours Flown by Type of Aircraft (in thousands)

All Aircraft—TOTAL	<u>32,332</u>	<u>32,096</u>	<u>30,067</u>	<u>26,493</u>	<u>24,340</u>
Fixed-Wing: Piston	24,907	25,832	24,102	21,251	19,029
Turboprop	2,892	2,319	1,513	1,478	1,227
Turbojet	1,527	1,396	1,236	1,072	1,165
Rotorcraft: Piston	692	716	585	416	370
Turbine	1,918	1,493	2,172	1,866	1,462
Balloons, Dirigibles, and Gliders ..	396	341	459	410	376
Experimental	NA	NA	NA	NA	711

Average Hours Flown Annually by Type

All Aircraft—TOTAL	<u>157.7</u>	<u>162.1</u>	<u>149.1</u>	<u>140.4</u>	<u>138.3</u>
Fixed-Wing: Piston	137.8	147.4	137.5	130.4	129.4
Turboprop	490.2	437.5	307.7	314.1	281.4
Turbojet	372.5	340.6	289.7	270.7	302.0
Rotorcraft: Piston	230.6	223.7	233.7	184.6	224.8
Turbine	479.5	403.6	592.2	491.3	510.5
Balloons, Dirigibles, and Gliders ..	55.0	51.6	61.4	50.9	71.6
Experimental	NA	NA	NA	NA	65.0

Source: Federal Aviation Administration, "FAA Statistical Handbook of Aviation" (Annually) and the Federal Aviation Administration, Office of Management Systems.

NOTE: Detail may not add to totals because of rounding and/or estimating procedures.

a Beginning in 1993, commuters were excluded from the survey.

NA Not available.

AIR TRANSPORTATION

U.S. GENERAL AVIATION ACTIVE AIRCRAFT AND HOURS FLOWN BY PRIMARY USE Calendar Years 1989–1993

Primary Use ^a	1989	1990	1991	1992	1993
ACTIVE AIRCRAFT AS OF DECEMBER 31 (in thousands)					
TOTAL	205.0	198.0	198.5	184.4	176.0
Executive	11.5	10.1	10.0	9.4	9.9
Business	35.0	33.1	31.6	28.9	27.8
Commuter ^b	1.3	1.2	0.7	0.8	(c)
Air Taxi ^b	6.6	5.8	5.5	4.7	3.8
Instructional	16.6	18.6	17.9	16.0	15.6
Personal	116.4	112.6	115.1	108.7	102.1
Aerial Application	6.6	6.2	7.0	5.1	5.0
Aerial Observation	5.4	4.9	5.1	5.6	4.8
Sight Seeing	NA	NA	NA	NA	1.6
External Load	NA	NA	NA	NA	0.1
Other Work	2.0	1.4	1.7	1.7	1.0
Other	3.6	4.1	3.9	3.5	4.2
HOURS FLOWN (in thousands)					
TOTAL	32,332	32,096	30,067	26,493	24,340
Executive	3,453	2,913	2,617	2,262	2,659
Business	4,330	4,417	4,154	3,537	3,345
Commuter ^b	1,392	1,333	570	693	(c)
Air Taxi ^b	3,020	2,249	2,241	2,009	1,452
Instructional	5,993	7,244	6,141	5,340	4,680
Personal	9,537	9,276	9,685	8,592	7,938
Aerial Application	1,868	1,872	1,911	1,296	1,167
Aerial Observation	1,719	1,745	1,797	1,730	1,750
Sight Seeing	NA	NA	NA	NA	412
External Load	NA	NA	NA	NA	105
Other Work	517	572	471	343	175
Other	507	475	473	358	656

Source: Federal Aviation Administration, "FAA Statistical Handbook of Aviation" (Annually).

NOTE: Detail may not add to totals because of rounding and estimating procedures.

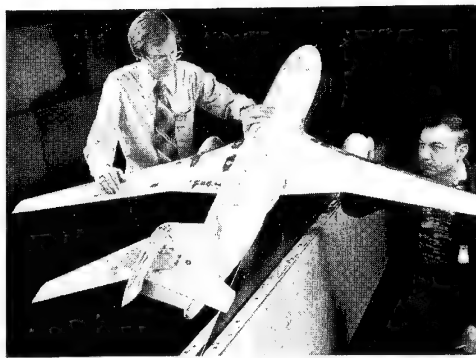
a Definitions of "primary use" categories available in Glossary of "FAA Statistical Handbook."

b Limited to single-engine commuters or air taxis under 12,500 pounds.

c Beginning in 1993, commuters were excluded from the survey.

NA Not available.

Research and Development



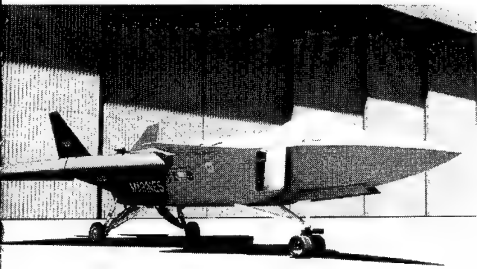
Despite government emphasis on deficit trimming and defense funding reductions, total federal outlays for research and development (R&D) increased from \$68.4 billion in 1993 to \$68.5 billion in 1994. The Office of Management and Budget (OMB) estimates Fiscal Year (FY) 1995 total federal outlays for R&D at \$68.9 billion. In inflation-adjusted constant dollar terms, however, federal R&D support has been declining since 1993.

For FY 1996, OMB estimates total outlays at \$69.4 billion, which would amount to a small increase in current dollars but a continued, moderate decrease in constant dollars. The Department of Defense (DoD), at \$35.2 billion (current dollars), will spend more than half of the total; that figure is down slightly from FY 1995 outlays. National Aeronautics and Space Administration outlays are estimated at \$8.7 billion (down \$62 million). Planned

Department of Energy outlays are \$6.3 billion, up from \$6.1 billion. All other government agencies will invest \$19.2 billion in R&D, up from \$18.3 billion.

In calendar year 1994, U.S. funding for R&D amounted to \$169.1 billion, up from \$165.8 billion in the previous year, according to the National Science Foundation's (NSF) annual survey. Industry funding, at \$99.7 billion, represented 59 percent of the total; federal outlays (\$61 billion) were more than 36 percent; colleges and universities (\$5.4 billion) were three percent; and nonprofit institutions (\$3.1 billion) were less than two percent. The great bulk of the R&D was performed by industry (71 percent).

For 1995, NSF estimated total R&D funding from all sources at \$171 billion with industry funding \$101.7 billion, again 59 percent of the total.



Calendar year 1993 is the latest year for which NSF is able to supply data on aerospace industrial R&D. In that year, total aerospace industrial R&D funding amounted to \$15.6 billion, \$9.4 billion of it from federal funding and \$6.2 billion funded by aerospace companies. The total represents a sharp drop from the prior year's \$17.2 billion.

With respect to R&D funding as a percentage of net sales, the aerospace industry recorded significantly higher percentages than the average for all U.S. manufacturing industries. Aerospace federal and company investment in R&D amounted to 13.2 percent of net sales in 1993; that compares with 3.8 percent for all manufacturing industries. Company funding as a percentage of net sales came to 5.2 percent; the all-industry average was 3.1 percent.

In FY 1994, DoD prime contract awards for Research, Develop-

ment, Test, and Evaluation (RDT&E) totaled \$21.8 billion, down from \$22.3 billion in the previous year. The largest single category of awards was for aircraft at \$5.8 billion. Principal aircraft programs in FY 1994 were the Air Force's F-22 advanced technology fighter at \$2.1 billion; the Navy F/A-18 fighter, \$1.5 billion; the USAF B-2 bomber, \$776 million; and the Army RAH-66 Comanche helicopter, \$365 million. The same four programs, plus the Navy/Marine Corps V-22 Osprey, were the top five for FY 1995. DoD estimates for aircraft RDT&E in FY 1996 show the F-22 heading the list at \$2.1 billion, followed by the F/A-18, \$920 million; the V-22, \$763 million; the B-2, \$624 million; and the RAH-66, \$199 million. Outlays for the co-funded USAF/Navy Joint Advanced Strike Technology fighter are estimated at \$331 million.

In a geographical breakdown of FY 1994 DoD prime contract awards for RDT&E, the South Atlantic region (\$5.7 billion, 26.9 percent of the total) took over first place from the perennial leader, the Pacific Region (\$4.4 billion, 20.5 percent). The New England region (\$2.3 billion, 10.6 percent) placed third and the Mountain region (\$2.2 billion, 10.2 percent) fourth.

AEROSPACE FACTS AND FIGURES 1995/1996

TOTAL U.S. FUNDS FOR RESEARCH AND DEVELOPMENT BY SOURCE AND PERFORMER^a

Calendar Years 1992–1995
(Millions of Dollars)

Source of Funds	TOTAL, All Perform- ers	Performer				
		Federal Govern- ment	Indus- try	Colleges & Univer- sities	Federally- Funded Research & Devel- opment Centers	Non- Profit Insti- tutions
1992 ^r						
All Sources—TOTAL ...	\$164,493	\$15,690	\$119,110	\$18,794	\$5,249	\$5,650
Federal Government	60,301	15,690	24,722	11,090	5,249	3,550
Industry	96,429	—	94,388	1,291	—	750
Colleges & Universities .	5,018	—	—	5,018	—	—
Nonprofit Institutions ...	2,745	—	—	1,395	—	1,350
1993						
All Sources—TOTAL ...	\$165,849	\$16,556	\$118,334	\$19,911	\$5,298	\$5,750
Federal Government	60,224	16,556	22,813	11,957	5,298	3,600
Industry	97,645	—	95,521	1,374	—	750
Colleges & Universities .	5,111	—	—	5,111	—	—
Nonprofit Institutions ...	2,869	—	—	1,469	—	1,400
1994 ^p						
All Sources—TOTAL ...	\$169,100	\$17,200	\$119,700	\$20,950	\$5,250	\$6,000
Federal Government	61,050	17,200	22,300	12,600	5,250	3,700
Industry	99,650	—	97,400	1,450	—	800
Colleges & Universities .	5,350	—	—	5,350	—	—
Nonprofit Institutions ...	3,050	—	—	1,550	—	1,500
1995 ^E						
All Sources—TOTAL ...	\$171,000	\$16,700	\$121,400	\$21,600	\$5,300	\$6,000
Federal Government	60,700	16,700	22,100	13,000	5,300	3,600
Industry	101,650	—	99,300	1,500	—	850
Colleges & Universities .	5,500	—	—	5,500	—	—
Nonprofit Institutions ...	3,150	—	—	1,600	—	1,550

Source: National Science Foundation, "Annual Survey of Industrial Research and Development" (Annually).

^a Source/performer detail not available by industry.

^E Estimate.

^p Preliminary.

^r Revised.

RESEARCH AND DEVELOPMENT

FEDERAL OUTLAYS FOR CONDUCT OF RESEARCH AND DEVELOPMENT

Fiscal Years 1982-1996
(Millions of Dollars)

Year	TOTAL	DoD	NASA	Energy ^a	Other ^b
CURRENT DOLLARS					
1982	\$34,660	\$18,363	\$3,220	\$5,178	\$ 7,899
1983	35,900	20,566	2,538	4,924	7,872
1984	40,986	23,850	3,538 ^r	5,182	8,416 ^r
1985	47,216	28,165	2,969 ^r	6,954	9,128 ^r
1986	52,141	33,396	3,431 ^r	5,392	9,922 ^r
1987	53,256	34,732	3,250	5,262	10,012
1988	56,100	35,605	3,832	5,332	11,331
1989	60,760	37,819	4,975	5,681	12,285
1990	63,810	38,247	6,325	5,957	13,281
1991	62,183 ^r	35,330	7,072	5,892 ^r	13,889
1992	64,728	35,504	7,617	6,043	15,564 ^r
1993	68,378	37,666	8,088	6,036	16,588
1994	68,453	35,474	7,878	5,904	19,197
1995 ^E	68,864	35,716	8,786	6,081	18,281
1996 ^E	69,405	35,206	8,724	6,250	19,225
CONSTANT DOLLARS^c					
1982	\$41,484	\$21,978	\$3,854	\$6,197	\$ 9,454
1983	41,255	23,634	2,917	5,658	9,046
1984	45,114	26,252	3,894 ^r	5,704	9,264 ^r
1985	50,059	29,861	3,148 ^r	7,373	9,678 ^r
1986	53,687	34,386	3,533 ^r	5,552	10,216 ^r
1987	53,256	34,732	3,250	5,262	10,012
1988	54,135	34,358	3,698	5,145	10,934
1989	56,140	34,943	4,597	5,249	11,351
1990	56,973	34,149	5,647	5,319	11,858
1991 ^r	53,284	30,274	6,060	5,049	11,901
1992 ^r	53,895	29,562	6,342	5,032	12,959
1993 ^r	55,592	30,623	6,576	4,907	13,486
1994	54,588	28,289	6,282	4,708	15,309
1995 ^E	53,466	27,730	6,821	4,721	14,193
1996 ^E	52,342	26,551	6,579	4,713	14,498

Source: Office of Management and Budget, "The Budget of the United States Government" (Annually).

NOTE: Detail may not add to totals because of rounding.

a Includes defense and nondefense-related atomic energy R&D with nondefense energy R&D.

b Includes but not limited to NSF, NIH, DoT, & Agriculture.

c Based on Fiscal Year GDP implicit price deflator, (1987=100).

E Estimate. Latest year reflects Administration's budget proposal.

r Revised.

AEROSPACE FACTS AND FIGURES 1995/1996

FUNDS FOR INDUSTRIAL RESEARCH AND DEVELOPMENT ALL INDUSTRIES AND THE AEROSPACE INDUSTRY

By Funding Source
Calendar Years 1979-1993
(Millions of Dollars)

Year	All Industries ^a			Aerospace Industry ^b		
	Total	Federal Funds	Company Funds ^c	Total	Federal Funds	Company Funds ^c
CURRENT DOLLARS						
1979	\$ 38,226	\$12,518	\$25,708	\$ 8,041	\$ 5,840	\$2,201
1980	44,505	14,029	30,476	9,198	6,628	2,570
1981	51,810	16,382	35,428	11,968	8,528	3,440
1982	58,650	18,545	40,105	14,451	10,265	4,186
1983	65,268	20,680	44,588	15,406	11,396	4,010
1984	74,800	23,396	51,404	18,858	14,094	4,764
1985	84,239	27,196	57,043	22,231	16,582	5,649
1986	87,823	27,891	59,932	21,050	14,984	6,066
1987	92,155	30,752	61,403	24,458	18,519	5,939
1988 ^r	97,015	30,343	66,672	24,168	18,402	5,766
1989 ^r	102,055	28,554	73,501	22,331	16,828	5,503
1990 ^r	109,727	28,125	81,602	20,635	15,248	5,387
1991	116,952	26,372	90,580	16,629	11,096	5,533
1992 ^r	119,110	24,722	94,388	17,158	10,287	6,871
1993	118,334	22,813	95,521	15,615	9,369	6,246
CONSTANT DOLLARS^d						
1979	\$ 58,316	\$19,097	\$39,219	\$12,267	\$ 8,909	\$3,358
1980	62,062	19,564	42,499	12,827	9,243	3,584
1981	65,699	20,774	44,925	15,176	10,814	4,362
1982	70,021	22,141	47,881	17,253	12,255	4,998
1983	74,883	23,726	51,156	17,676	13,075	4,601
1984	82,153	25,696	56,457	20,712	15,479	5,232
1985	89,265	28,818	60,446	23,557	17,571	5,986
1986	90,614	28,777	61,837	21,719	15,460	6,259
1987	92,155	30,752	61,403	24,458	18,519	5,939
1988 ^r	93,418	29,218	64,200	23,272	17,720	5,552
1989 ^r	94,060	26,317	67,743	20,582	15,510	5,072
1990 ^r	96,846	24,823	72,023	18,213	13,458	4,755
1991 ^r	99,449	22,425	77,024	14,140	9,435	4,705
1992 ^r	98,519	20,448	78,071	14,192	8,509	5,683
1993	95,817	18,472	77,345	12,644	7,586	5,087

Source: National Science Foundation, "Annual Survey of Industrial Research and Development" (Annually).

NOTE: Detail may not add to totals because of rounding.

a Includes all manufacturing industries, plus those non-manufacturing industries known to conduct or finance research and development.

b Companies classified in SIC codes 372 and 376, having as their principal activity the manufacture of aircraft, guided missiles, space vehicles, and parts.

c Company funds include all funds for industrial R&D work performed within company facilities except funds provided by the Federal Government. Excluded are company-financed research and development contracted to outside organizations such as research institutions, universities and colleges, or other non-profit organizations.

d Based on GDP implicit price deflator, (1987=100).

r Revised.

RESEARCH AND DEVELOPMENT

RESEARCH AND DEVELOPMENT FUNDS AS PERCENT OF NET SALES ALL MANUFACTURING INDUSTRIES AND THE AEROSPACE INDUSTRY

Calendar Years 1978–1993

Year	All Manufacturing Industries ^a		Aerospace Industry ^b	
	Total Funds	Company Funds	Total Funds	Company Funds
1978	2.9%	2.0%	13.3 %	3.2%
1979	2.6	1.9	12.9	3.5
1980	3.0	2.1	13.7	3.8
1981	3.1	2.2	16.0	4.6
1982	3.8	2.6	17.1	5.1
1983	3.9	2.6	15.2	4.1
1984	3.9	2.6	15.4	4.0
1985	4.4	3.0	14.9	3.9
1986	4.7	3.2	13.4	4.0
1987	4.6	3.1	14.7	3.6
1988 ^r	4.5	3.1	16.3	3.9
1989 ^r	4.3	3.1	13.5	3.3
1990 ^r	4.2	3.1	11.8	3.1
1991	4.2	3.2	12.1	4.0
1992	4.2	3.3	11.8	4.7 ^r
1993	3.8	3.1	13.2	5.2

Source: National Science Foundation, "Annual Survey of Industrial Research and Development" (Annually).

^a Includes all manufacturing industries known to conduct or finance research and development.

^b Companies classified in SIC codes 372 and 376, having as their principal activity the manufacture of aircraft, guided missiles, space vehicles, and parts.

^r Revised.

AEROSPACE FACTS AND FIGURES 1995/1996

FUNDS FOR INDUSTRIAL RESEARCH AND DEVELOPMENT IN THE AEROSPACE INDUSTRY

By Type of Research and Funding Source
Calendar Years 1964–1993
(Millions of Dollars)

Year	TOTAL AERO- SPACE	Basic Research			Applied Research			Development		
		Total	Federal Funds	Com- pany Funds	Total	Federal Funds	Com- pany Funds	Total	Federal Funds	Com- pany Funds
1964	\$ 5,078	\$ 67	\$ 34	\$ 28	\$ 766	\$ 607	\$ 159	\$ 4,244	\$ 3,948	\$ 296
1965	5,148	71	41	30	735	563	172	4,342	3,921	421
1966	5,526	69	36	33	773	563	210	4,685	4,162	523
1967	5,669	71	33	38	726	490	236	4,871	4,071	800
1968	5,765	68	26	42	677	426	251	5,021	4,145	876
1969	5,882	65	24	41	597	347	250	5,220	4,216	1,004
1970	5,219	63	20	43	565	352	213	4,591	3,718	873
1971	4,881	54	37	17	461	279	182	4,365	3,583	782
1972	4,950	60	44	16	451	267	184	4,438	3,722	716
1973	5,052	50	21	29	512	308	204	4,491	3,633	858
1974	5,278	51	19	32	609	360	249	4,617	3,735	882
1975	5,713	54	17	37	614	381	233	5,044	4,119	925
1976	6,339	54	21	33	666	365	301	5,619	4,521	1,098
1977	7,033	56	25	31	753	419	334	6,223	5,017	1,206
1979 ^a	8,041	86	44	42	880	499	381	7,076	5,314	1,762
1981 ^a	11,968	131	60	71	1,484	897	587	10,353	7,738	2,615
1983	13,853	146	NA	NA	3,466	NA	NA	10,241	7,668	2,573
1984	16,033	247	NA	NA	3,067	NA	NA	12,718	9,870	2,848
1985	17,619	304	162	142	3,785	2,776	1,009	13,530	10,483	3,047
1986	21,050	311	208	103	3,198	1,571	1,627	17,541	13,205	4,336
1987	24,488	425	335	90	2,949	1,709	1,239	21,115	16,475	4,640
1988	25,900	366	263	104	2,997	1,915	1,082	22,537	17,700	4,838
1989	25,638	668	553	116	3,081	2,113	968	21,889	16,967	4,921
1990	25,356	658	519	139	3,340	1,931	1,409	21,358	16,766	4,592
1991 ^r	16,983	364	302	62	2,091	1,105	986	14,528	10,043 ^b	4,485
1992 ^r	17,158	270	235	35	1,742	976	776	15,146	9,077	6,069
1993	15,615	288	256	32	1,421	839	582	13,906	8,274	5,633

Source: National Science Foundation, "Annual Survey of Industrial Research and Development" (Annually).

NOTE: Detail may not add to totals because of rounding.

a Break-outs by Research Type and Funding Source available only for odd-numbered years between 1977 and 1983.

b Computed by AIA as difference between total and company funds. Figure withheld by NSF because of imputation of more than 50 percent.

NA Not available.

r Revised.

RESEARCH AND DEVELOPMENT

EMPLOYMENT AND COST OF R&D SCIENTISTS AND ENGINEERS ALL INDUSTRIES AND AEROSPACE INDUSTRY

Calendar Years 1979-1994

Year	Employment ^a			Cost Per R&D Scientist and Engineer ^d	
	All Industries ^b (Thousands)	Aerospace ^c (Thousands)	Aerospace as a Percent of All Industries	All Industries ^b	Aerospace ^c
1979	423.9	86.5	20.4 %	\$ 87,400	\$ 93,300
1980	450.6	85.9	19.1	94,900	101,600
1981	487.8	95.2	19.5	103,900	128,400
1982	509.8	91.1	17.9	111,600	148,800
1983	540.9	103.1	19.1	116,000	143,600
1984	584.1	111.5	19.1	124,000	156,000
1985	622.5	130.2	20.9	130,200	161,700
1986	671.0	144.8	21.6	128,500	149,800
1987	695.8	136.3	19.6	128,800 ^r	180,400 ^r
1988	708.6	136.4	19.2	132,300 ^r	193,300 ^r
1989 ^r	722.5	134.8	18.7	134,500	207,300
1990 ^r	743.6	115.3	15.5	141,300	213,700
1991 ^r	773.4	100.2	13.0	148,600	177,000
1992 ^r	779.3	92.9	11.9	157,912	180,552
1993 ^r	764.7	97.9	12.8	154,814	183,400
1994	764.3	72.4	9.5	NA	NA

Source: National Science Foundation.

a Employment as of January. Scientists and engineers working less than full time have been included in terms of their full time equivalent number.

b All manufacturing industries and those non-manufacturing industries known to conduct or finance research and development.

c Standard Industrial Classification codes 372 and 376.

d The arithmetic mean of the numbers of R&D scientists and engineers reported for January in two consecutive years, divided into the total R&D expenditures of each industry during the earlier year.

NA Not available.

r Revised.

AEROSPACE FACTS AND FIGURES 1995/1996

FEDERAL AERONAUTICS RESEARCH AND DEVELOPMENT

Fiscal Years 1976-1994
(Millions of Dollars)

Year	TOTAL	NASA ^a	DoD ^b	DoT ^c
BUDGET AUTHORITY				
1976	\$ 2,351	\$ 325	\$1,941	\$ 85
Tr.Qtr.	584	83	480	22
1977	2,727	378	2,256	93
1978	3,338	437	2,807	94
1979	2,850	519	2,240	91
1980	2,991	560	2,336	95
1981	3,286	526	2,653	106
1982	3,581	516	2,984	81
1983	3,871	547	3,221	103
1984	4,087	600	3,224	263
1985	4,355	648	3,422	265
1986	6,660	601	4,927	1,132
1987	5,824	698	4,179	946
1988	6,974	723	4,989	1,262
1989	10,656	872	8,240	1,544
1990	10,690	932	7,867	1,891
1991	9,417	968	6,149	2,300
1992	11,110 ^r	1,117	7,366	2,627 ^r
1993	11,379	1,246	7,601	2,532
1994 ^E	10,618	1,546	6,763	2,309
OUTLAYS				
1982 ^d	\$ 3,309	\$ 563	\$2,657	\$ 89
1983	3,554	563	2,920	71
1984	3,727	586	2,995	146
1985	4,010	643	3,101	266
1986	6,071	648	4,373	1,050
1987	5,866	622	4,182	1,062
1988	6,340	679	4,448	1,213
1989	8,491	855	6,420	1,216
1990	10,009	889	7,649	1,471
1991	9,501	1,017	6,793	1,691
1992	10,011	1,122	6,790	2,099
1993	10,755	1,212	7,165	2,378
1994 ^E	10,829	1,330	6,895	2,604

Source: NASA, "Aeronautics and Space Report of the President" (Annually).

^a Research and Development, Construction of Facilities, Research and Program Management.

^b Research, Development, Test, and Evaluation of aircraft and related equipment.

^c Federal Aviation Administration: Research, Engineering, and Development; and Facilities, Engineering, and Development.

^d First year outlays data available.

^E Estimate.

Tr.Qtr. See Glossary.

^r Revised.

RESEARCH AND DEVELOPMENT

FEDERAL AERONAUTICS RESEARCH AND DEVELOPMENT IN CONSTANT DOLLARS

Fiscal Years 1976-1994
(Millions of Constant Dollars^a)

Year	TOTAL	NASA ^b	DoD ^c	DoT ^d
BUDGET AUTHORITY				
1976	\$4,590	\$ 635	\$3,790	\$ 166
Tr.Qtr.	1,083	154	891	41
1977	4,924	683	4,074	168
1978	5,603	734	4,712	158
1979	4,402	802	3,460	141
1980	4,238	793	3,310	135
1981	4,226	676	3,412	136
1982	4,286	618	3,572	97
1983	4,448	629	3,701	118
1984	4,499	660	3,549	289
1985	4,617	687	3,628	281
1986	6,857	619	5,073	1,166
1987	5,824	698	4,179	946
1988	6,730	698	4,814	1,218
1989	9,846	806	7,613	1,427
1990	9,545	832	7,024	1,688
1991 ^f	8,069	829	5,269	1,971
1992 ^f	9,251	930	6,133	2,187
1993	9,251	1,013	6,180	2,059
1994 ^E	8,467	1,233	5,393	1,841

OUTLAYS

1982 ^f	\$3,961	\$ 674	\$3,180	\$ 107
1983	4,084	647	3,356	82
1984	4,102	645	3,297	161
1985	4,251	682	3,288	282
1986	6,251	667	4,503	1,081
1987	5,866	622	4,182	1,062
1988	6,118	655	4,292	1,171
1989	7,845	790	5,932	1,124
1990	8,937	794	6,829	1,313
1991 ^f	8,141	871	5,821	1,449
1992 ^f	8,336	934	5,654	1,748
1993	8,744	985	5,825	1,933
1994	8,636	1,061	5,498	2,077

Source: AIA, derived from NASA, "Aeronautics and Space Report of the President" (Annually).

a Based on Fiscal Year GDP implicit price deflator, 1987=100.

b Research and Development, Construction of Facilities, Research and Program Management.

c Research, Development, Test, and Evaluation of aircraft and related equipment.

d Federal Aviation Administration: Research, Engineering, and Development; and Facilities, Engineering, and Development.

E Estimate.

f First year outlays data available.

r Revised.

Tr.Qtr. See Glossary.

AEROSPACE FACTS AND FIGURES 1995/1996

**DEPARTMENT OF DEFENSE
APPROPRIATIONS FOR
RESEARCH, DEVELOPMENT, TEST, AND EVALUATION**
Fiscal Years 1994–1996
(Millions of Dollars)

	1994	1995 ^E	1996 ^E
TOTAL—APPROPRIATIONS FOR RDT&E	\$34,706	\$35,515	\$34,332
BY APPROPRIATION			
Army	\$ 5,413	\$ 5,481	\$ 4,444
Navy	8,191	8,695	8,205
Air Force	12,118	12,057	12,598
Defense Agencies	8,680	9,025	8,803
Director of Test & Evaluation, Defense	232	233	259
Director of Operational Test & Evaluation	11	23	23
RECAP OF BUDGET ACTIVITIES			
Research	\$ 1,167	\$ 1,227	\$ 1,214
Exploratory Development	2,691	3,070	2,816
Advanced Development	6,208	4,339	3,796
Demonstration and Validation	2,697	4,325	4,229
Engineering & Manufacturing Development	7,334	8,930	8,759
RDT&E Management Support	3,369	3,436	3,305
Operational Systems Development	11,242	10,188	10,213
RECAP OF FYDP PROGRAMS			
Strategic Forces	\$ 290	\$ 146	\$ 132
General Purpose Forces	3,619	3,674	3,266
Intelligence and Communications	6,731	5,954	6,364
Airlift/Sealift	22	23	18
Research and Development (FYDP Program 6) ..	23,424	25,479	24,378
Central Supply and Maintenance	329	31	23
Training Medical and Other	2	1	1
Administration and Associated Activities	6	6	6
Support of Other Nations	2	2	4
Special Operations Forces	281	201	140

Source: Department of Defense Budget, "RDT&E Programs (R-1)" (Annually).

NOTE: Detail may not add to totals because of rounding.

E Estimate. Latest year reflects Administration's budget proposal.

RESEARCH AND DEVELOPMENT

DEPARTMENT OF DEFENSE OUTLAYS FOR RESEARCH, DEVELOPMENT, TEST, AND EVALUATION

Fiscal Years 1972-1996
(Millions of Dollars)

Year	TOTAL, All RDT&E Functions	Air Force	Navy	Army	Other
1972	\$ 7,881	\$ 3,205	\$2,427	\$1,779	\$ 470
1973	8,157	3,362	2,404	1,912	479
1974	8,582	3,240	2,623	2,190	529
1975	8,866	3,308	3,021	1,964	573
1976	8,923	3,338	3,215	1,842	528
Tr.Qtr.	2,203	830	778	437	161
1977	9,795	3,618	3,481	2,069	627
1978	10,508	3,626	3,825	2,342	715
1979	11,152	4,080	3,826	2,409	837
1980	13,127	5,017	4,382	2,707	1,021
1981	15,278	6,341	4,783	2,958	1,196
1982	17,729	7,794	5,240	3,230	1,465
1983	20,554	9,182	5,854	3,658	1,861
1984	23,117	10,353	6,662	3,812	2,289
1985	27,103	11,573	8,054	3,950	3,527
1986	32,283	13,417	9,667	3,984	5,215
1987	33,596	13,347	9,176	4,721	6,352
1988	34,792	14,302	8,828	4,624	7,038
1989	37,002	14,912	9,291	4,966	7,833
1990	37,458	14,443	9,160	5,513	8,342
1991	34,589	13,050	7,586	5,559	8,371
1992	34,632	11,998	7,826	5,978	8,830
1993	36,967	12,338	8,944	6,218	9,467
1994	34,786	12,513	7,990	5,746	8,537
1995 ^E	35,095	12,166	8,654	5,191	9,084
1996 ^E	34,543	12,032	8,458	4,880	9,173

Source: Office of Management and Budget, "The Budget of the United States Government" (Annually).

^E Estimate. Latest year reflects Administration's budget proposal.

Tr.Qtr. See Glossary.

AEROSPACE FACTS AND FIGURES 1995/1996

**DEPARTMENT OF DEFENSE
PRIME CONTRACT AWARDS
FOR RESEARCH, DEVELOPMENT, TEST, AND EVALUATION**
Fiscal Years 1990–1994
(Millions of Dollars)

Program Categories	1990	1991	1992	1993	1994
TOTAL—RDT&E	<u>\$22,319</u>	<u>\$20,898</u>	<u>\$21,730</u>	<u>\$22,292</u>	<u>\$21,824</u>
Research	994	1,063	1,195	1,377	1,052
Exploratory Development	1,813	2,288	2,159	2,203	2,181
Other Development	18,697	16,424	16,975	17,251	17,468
Management & Support	815	1,124	1,401	1,461	1,123
Aircraft—TOTAL	<u>\$ 4,364</u>	<u>\$ 3,143</u>	<u>\$ 4,022</u>	<u>\$ 5,114</u>	<u>\$ 5,809</u>
Research	(191)	13	18	13	10
Exploratory Development	82	83	74	86	81
Other Development	4,431	3,002	3,873	4,942	5,615
Management & Support	42	45	58	73	102
Missile and Space Systems—TOTAL ..	<u>6,865</u>	<u>6,649</u>	<u>5,730</u>	<u>5,871</u>	<u>5,727</u>
Research	175	95	98	339	114
Exploratory Development	308	710	489	456	395
Other Development	6,291	5,759	5,084	5,011	5,160
Management & Support	91	86	59	65	58
Electronics & Communications					
Equipment—TOTAL	<u>3,925</u>	<u>3,814</u>	<u>4,265</u>	<u>3,914</u>	<u>3,567</u>
Research	188	127	147	158	108
Exploratory Development	327	299	369	337	340
Other Development	3,337	3,323	3,723	3,374	3,069
Management & Support	73	64	27	46	50
All Other—TOTAL^a	<u>7,165</u>	<u>7,292</u>	<u>7,713</u>	<u>7,392</u>	<u>6,721</u>
Research	822	827	933	867	820
Exploratory Development	1,097	1,196	1,228	1,324	1,365
Other Development	4,637	4,341	4,295	3,924	3,624
Management & Support	609	928	1,258	1,277	912

Source: Department of Defense, "Prime Contract Awards by Service Category and Federal Supply Classification" (Annually).

NOTE: Detail may not add to totals because of rounding.

a "All Other" includes ships, tank-automotive, weapons, ammunition, services, and other.

() Reflects net cancellations.

RESEARCH AND DEVELOPMENT

**DEPARTMENT OF DEFENSE
NET VALUE OF PRIME CONTRACT AWARDS OVER \$25,000
FOR RESEARCH, DEVELOPMENT, TEST, AND EVALUATION**
By Region and Type of Contractor
Fiscal Year 1994

REGION	TOTAL	Type of Contractor		
		Educational Institutions	Other Non-Profit Institutions ^a	Business Firms
TOTAL—Millions of Dollars	\$21,303	\$362	\$1,839	\$19,102
New England	\$ 2,258	\$ 36	\$ 677	\$ 1,545
Middle Atlantic	1,934	74	166	1,694
East North Central	760	49	50	660
West North Central	1,591	3	9	1,579
South Atlantic	5,725	68	808	4,849
East South Central	753	11	3	738
West South Central	1,745	24	46	1,676
Mountain	2,176	50	2	2,125
Pacific ^b	4,361	47	78	4,235
PERCENT OF TOTAL	100.0%	100.0%	100.0%	100.0%
New England	10.6%	9.9%	36.8%	8.1%
Middle Atlantic	9.1	20.4	9.0	8.9
East North Central	3.6	13.6	2.7	3.5
West North Central	7.5	0.9	0.5	8.3
South Atlantic	26.9	18.9	43.9	25.4
East South Central	3.5	3.2	0.2	3.9
West South Central	8.2	6.6	2.5	8.8
Mountain	10.2	13.8	0.1	11.1
Pacific ^b	20.5	12.9	4.3	22.2

Source: Department of Defense, "Prime Contract Awards by Region and State" (Annually).

NOTE: Detail may not add to totals because of rounding.

a Includes contracts with other government agencies.

b Includes Alaska and Hawaii.

MISSILE PROGRAMS **RESEARCH, DEVELOPMENT, TEST, AND EVALUATION**

By Agency and Model
Fiscal Years 1994, 1995, and 1996
(Millions of Dollars^a)

Agency and Model	1994	1995 ^E	1996 ^E
AIR FORCE			
AMRAAM ^b	\$ 65.8	\$ 85.5	\$ 46.8
*JDAM	73.7	92.8	130.0
JSOW ^b	106.5	168.8	125.8
*WCMD	NA	23.5	53.3
NAVY			
Harpoon	\$ NA	\$ 62.9	\$ 40.5
RAM	NA	18.1	26.1
Standard	62.3	16.8	8.6
Tomahawk	43.6	84.0	141.4
Trident II	NA	22.2	19.7
ARMY			
AAWS-M	\$ 47.2	\$ 34.3	\$ —
ATACMS	NA	37.3	—
*BAT	121.9	117.5	193.3
Longbow Hellfire	NA	34.5	—
MLRS	41.7	57.8	68.8
BMD ORGANIZATION			
BMD	\$2,605.1	\$2,467.6	\$2,442.2

Source: Department of Defense Budget, "Program Acquisition Costs by Weapon System" (Annually).

NOTE: See Missile Programs Chapter for missile program procurement authorization data.

a Total Obligational Authority.

b Navy and Air Force funding.

E Estimate. Latest year reflects Administration's budget proposal.

NA Not available.

* Programs in R&D only.

Missile Program Acronyms:

AAWS-M —Advanced Anti-Tank Weapon System-Medium	AMRAAM —Advanced Medium Range Air-to-Air Missile
ATACMS —Army TACTical Missile System	BAT —Brilliant Anti-Tank submunition
BMD —Ballistic Missile Defense	JDAM —Joint Direct Attack Munition
JSOW —Joint Standoff Weapon	MLRS —Multiple Launch Rocket System
RAM —Rolling Airframe Missile	WCMD —Wind Corrected Munitions Dispenser

RESEARCH AND DEVELOPMENT

MILITARY AIRCRAFT PROGRAMS RESEARCH, DEVELOPMENT, TEST, AND EVALUATION

By Agency and Model
Fiscal Years 1994, 1995, and 1996
(Millions of Dollars^a)

Agency and Model	1994	1995 ^E	1996 ^E
AIR FORCE			
B-2 Spirit	\$ 776.3	\$ 384.1	\$ 623.6
C-17 Globemaster III	230.4	188.1	85.8
C-130J	—	4.9	—
E-8A JSTARS	278.8	172.3	169.7
*F-22 Lightning	2,058.8	2,325.3	2,138.7
NAVY			
AV-8B Harrier	\$ 12.8	\$ 10.6	\$ 11.3
E-2C Hawkeye	18.1	51.3	53.0
F/A-18 Hornet	1,454.1	1,312.6	919.5
*JAST ^b	29.7	183.6	331.2
JPATS ^b	(c)	40.4	49.6
T-45 Goshawk	31.8 ^c	0.3	0.5
V-22 Osprey	9.8	452.7	762.5
ARMY			
Longbow Apache	\$ 271.1	\$ 169.0	\$ 23.6
*RAH-66 Comanche	365.2	488.6	199.1

Source: Department of Defense Budget, "Program Acquisition Costs by Weapon System" (Annually).

NOTE: See Aircraft Production Chapter for aircraft program procurement authorization data.

a Total Obligational Authority.

b Air Force and Navy funding.

c USN funding for training system aircraft. See T-45 and JPATS.

E Estimate. Latest year reflects Administration's budget proposal.

* Programs in R&D only.

Foreign Trade

In 1994, aerospace exports declined more than five percent below the previous year's level and the aerospace trade balance similarly declined. However, the U.S. aerospace industry recorded what is considered an excellent performance in international trade at a time when the global aerospace market was generally depressed.

Aerospace exports totaled \$37.4 billion, down from \$39.4 billion in 1993. At \$25 billion, the aerospace trade balance was down 8.2 percent from 1993's \$27.2 billion. Aerospace imports, at \$12.4 billion, increased just slightly from the previous year.

Aerospace exports amounted to 7.3 percent of all U.S. merchandise exports in 1994; the figure compares with 8.5 percent in 1993 and 10 percent in 1992. As is usually the case, civil exports accounted for most of the export volume—more than 80 percent. The 1994 civil export total of \$30 billion compares with \$31.8 billion in 1993.

In terms of dollar value, 53 percent of the civil export volume was in sales of airline transports. Military exports, at \$7.3 billion, were down from \$7.6 billion in the previous year.

A breakdown of civil exports shows sales of complete aircraft at \$17.8 billion (down from \$19.8 bil-

lion); aircraft and engine parts, \$9.6 billion (up from \$9.2 billion); and aircraft engines, \$2.4 billion (up from \$2.3 billion).

At \$15.9 billion, export sales of airline transport aircraft were down sharply from the previous year's \$18.1 billion and constituted the principal reason for the overall decline in export volume. However, transport sales still accounted for 90 percent of all complete aircraft sales.

Complete aircraft exports also included shipments of general aviation aircraft valued at \$598 million (up from \$551 million); \$1.1 billion in used aircraft (up from \$1 billion); \$82 million in civil helicopters (down from \$120 million); and \$309 million in a category listed as "Other, including spacecraft" (up from \$293 million).

Military exports in 1994 totaled \$7.3 billion (down from \$7.6 billion) and included \$1.1 billion in complete aircraft (down from \$1.5 billion); \$4.7 billion in aircraft and engine parts (up from \$4.4 billion); \$1 billion in guided missiles, rockets, and parts (down from \$1.2 billion); and \$251 million in aircraft engines (up from \$190 million).

Civil imports in 1994 totaled \$8.8 billion (up from \$8.6 billion) and included complete aircraft valued at \$3.8 billion (up from \$3.7 billion); aircraft and engine parts at

\$3.6 billion (same as prior year); and aircraft engines worth \$1.4 billion (up from \$1.3 billion).

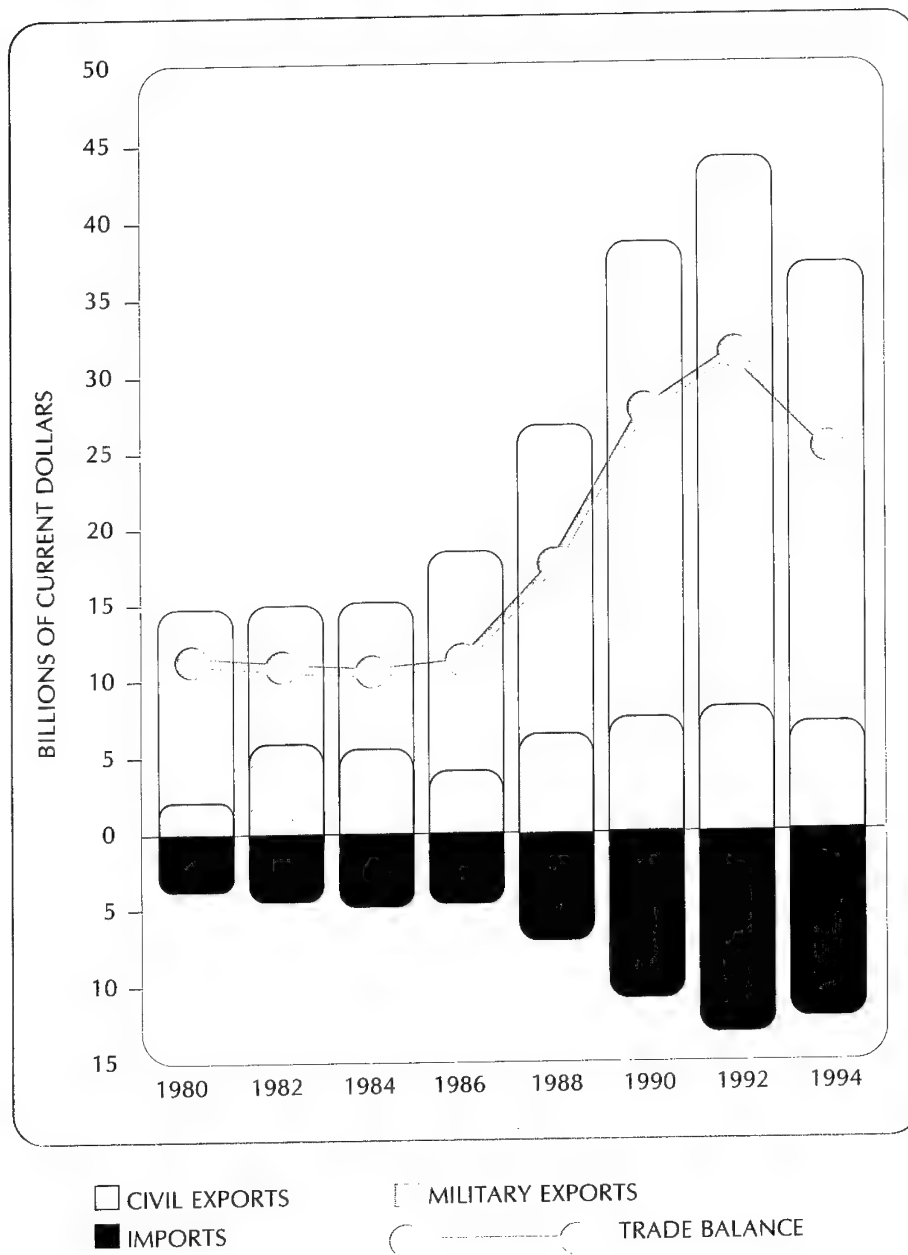
Among \$3.6 billion worth of military imports (as in the prior year) were aircraft and engine parts valued at \$2.2 billion (same), aircraft engines worth \$1.4 billion (up from \$1.3 billion), and complete aircraft valued at \$22 million (up from \$13 million).

The principal customers for U.S. aerospace exports in 1994 were Japan (\$4.1 billion); the United Kingdom

(\$3.6 billion); France (\$2.9 billion); China (\$2 billion); Singapore (\$1.8 billion); Canada (\$1.8 billion); Taiwan (\$1.8 billion); South Korea (\$1.8 billion); The Netherlands (\$1.7 billion); and Germany (\$1.6 billion).



Aerospace Exports, Imports, and Trade Balance



SOURCE: AEROSPACE INDUSTRIES ASSOCIATION

FOREIGN TRADE

U.S. TOTAL AND AEROSPACE FOREIGN TRADE^a

Calendar Years 1964–1994

(Millions of Dollars)

Year	Total U.S. Merchandise Trade			Aerospace		
	Trade Balance	Exports	Imports	Trade Balance	Exports	Imports
1964	\$ 7,006	\$ 25,690	\$ 18,684	\$ 1,518	\$ 1,608	\$ 90
1965	5,334	26,699	21,366	1,459	1,618	159
1966	3,837	29,379	25,542	1,370	1,673	303
1967	4,122	30,934	26,812	1,961	2,248	287
1968	837	34,063	33,226	2,661	2,994	333
1969	1,289	37,332	36,043	2,831	3,138	307
1970	3,225	43,176	39,952	3,097	3,405	308
1971	(1,476) ^b	44,087	45,563	3,830	4,203	373
1972	(5,729)	49,854	55,583	3,230	3,795	565
1973	2,390	71,865	69,476	4,360	5,142	782
1974	(3,884)	99,437	103,321	6,350	7,095	745
1975	9,551	108,856	99,305	7,045	7,792	747
1976	(7,820)	116,794	124,614	7,267	7,843	576
1977	(28,353)	123,182	151,534	6,850	7,581	731
1978	(30,205)	145,847	176,052	9,058	10,001	943
1979	(23,922)	186,363	210,285	10,123	11,747	1,624
1980	(19,696)	225,566	245,262	11,952	15,506	3,554
1981	(22,267)	238,715	260,982	13,134	17,634	4,500
1982	(27,510)	216,442	243,952	11,035	15,603	4,568
1983	(52,409)	205,639	258,048	12,619	16,065	3,446
1984	(106,703)	223,976	330,678	10,082	15,008	4,926
1985	(117,712)	218,815	336,526	12,593	18,725	6,132
1986	(138,279)	227,159	365,438	11,826	19,728	7,902
1987	(152,119)	254,122	406,241	14,575	22,480	7,905
1988	(118,526)	322,426	440,952	17,860	26,947	9,087
1989	(109,399)	363,812	473,211	22,083	32,111	10,028
1990	(101,718)	393,592	495,311	27,282	39,083	11,801
1991	(66,723) ^r	421,730	488,453 ^r	30,785	43,788	13,003
1992	(84,501)	448,164	532,665	31,356	45,018	13,662
1993	(115,568)	465,091	580,659	27,235	39,418	12,183
1994	(151,308)	512,521	663,829	25,010	37,373	12,363

Source: Bureau of the Census, Foreign Trade Division and Aerospace Industries Association, based on data from International Trade Administration.

NOTE: The Commerce Department began reporting international trade using the Harmonized Tariff Schedules of the United States in 1989. Previous years based on the Tariff Schedules of the United States Annotated.

a Total U.S. and aerospace foreign trade are reported as (1) exports of domestic merchandise, including Department of Defense shipments and undocumented exports to Canada, f.a.s. (= free alongside ship) basis, (2) imports for consumption, customs value basis.

b First U.S. trade deficit since 1888.

r Revised.

AEROSPACE FACTS AND FIGURES 1995/1996

TOTAL U.S. EXPORTS AND EXPORTS OF AEROSPACE PRODUCTS
Calendar Years 1964–1994
(Millions of Dollars)

Year	TOTAL Exports of U.S. Merchandise ^a	Exports of Aerospace Products				
		TOTAL	Percent of Total U.S. Exports	Civil		Military
				Total	Trans- ports	
1964	\$ 25,690	\$ 1,608	6.3%	\$ 764	\$ 211	\$ 844
1965	26,699	1,618	6.1	854	353	764
1966	29,379	1,673	5.7	1,035	421	638
1967	30,934	2,248	7.3	1,380	611	868
1968	34,063	2,994	8.8	2,289	1,200	705
1969	37,332	3,138	8.4	2,027	947	1,111
1970	43,176	3,405	7.9	2,516	1,283	889
1971	44,087	4,203	9.5	3,080	1,567	1,123
1972	49,854	3,795	7.6	2,954	1,119	841
1973	71,865	5,142	7.2	3,788	1,664	1,354
1974	99,437	7,095	7.1	5,273	2,655	1,822
1975	108,856	7,792	7.2	5,324	2,397	2,468
1976	116,794	7,843	6.7	5,677	2,468	2,166
1977	123,182	7,581	6.2	5,049	1,936	2,532
1978	145,847	10,001	6.9	6,018	2,558	3,983
1979	186,363	11,747	6.3	9,772	4,998	1,975
1980	225,566	15,506	6.9	13,248	6,727	2,258
1981	238,715	17,634	7.4	13,312	7,180	4,322
1982	216,442	15,603	7.2	9,608	3,834	5,995
1983	205,639	16,065	7.8	10,595	4,683	5,470
1984	223,976	15,008	6.7	9,659	3,195	5,350
1985	218,815	18,725	8.6	12,942	5,518	5,783
1986	227,159	19,728	8.7	14,851	6,276	4,875
1987	254,122	22,480	8.8	15,768	6,377	6,714
1988	322,426	26,947	8.4	20,298	8,766	6,651
1989	363,812	32,111	8.8	25,619	12,313	6,492
1990	393,592	39,083	9.9	31,517	16,691	7,566
1991	421,730	43,788	10.4	35,548	20,881	8,239
1992	448,164	45,018	10.0	36,904	22,379	8,114
1993	465,091 ^r	39,418	8.5	31,821	18,146	7,598
1994	512,521	37,373	7.3	30,049	15,931	7,324

Source: Bureau of the Census, Foreign Trade Division and Aerospace Industries Association, based on data from International Trade Administration.

NOTE: International trade reported using Harmonized Tariff Schedules after 1988.

a Includes DoD shipments and undocumented exports to Canada, free alongside ship basis.

r Revised.

FOREIGN TRADE

U.S. EXPORTS OF AEROSPACE PRODUCTS^a BY MAJOR COUNTRIES OF DESTINATION

Calendar Years 1990-1994
(Millions of Dollars)

Major Countries of Destination	1990	1991	1992	1993	1994
Australia	\$1,760	\$1,596	\$1,746	\$ 543	\$ 812
Belgium/Luxembourg	682	826 ^r	506	654 ^r	343
Brazil	925	1,491	1,032	627	483
Canada	2,238	2,211 ^r	2,254	1,872	1,827
China	861	1,244	2,247	2,384	2,047
France	3,300	4,359	3,912	3,339	2,857
Germany	2,800	3,939	3,044	1,764	1,612
Israel	503	738	957	967	994
Italy	737	1,051	1,214	547 ^r	1,003
Japan	4,186	3,910	4,505	3,581	4,099
Korea, South	1,113	1,716	1,716 ^r	1,588	1,782
Malaysia	444	657	856	1,517	990
Mexico	462	608	991	554	631
Netherlands	1,613	1,458	1,234	1,162	1,643
Singapore	845 ^r	1,278	1,067	1,485	1,839
Spain	1,198	972	776	417	528
Sweden	952	1,081	632	386	234
Taiwan	733	1,324	1,380 ^r	2,133	1,790
Turkey	468	580	800	1,223	886
United Kingdom	4,968	3,961	3,483	3,533	3,601

Source: U.S. Department of Commerce, International Trade Administration.

NOTE: International trade reported using Harmonized Tariff Schedules after 1988.

a Includes all civil products, free alongside ship basis; excludes military products whose country of destination are not reported.

r Revised.

U.S. IMPORTS OF AEROSPACE PRODUCTS^a BY MAJOR COUNTRIES OF ORIGIN

Calendar Years 1990-1994
(Millions of Dollars)

Major Countries of Origin	1990	1991	1992	1993	1994
Brazil	\$ 360	\$ 186	\$ 164	\$ 119	\$ 73
Canada	2,530	2,734	2,432	2,072	2,443
France	2,782	3,558 ^r	4,220	4,249	4,087
Germany, West	712	523	614	478	699
Israel	227	291	230	203	257
Italy	418	598	585	368	274
Japan	566	661	655	538	583
Netherlands	368	761	915	707	505
Sweden	317	332	234	135	96
United Kingdom	2,700	2,499	2,805	2,523	2,546

Source: U.S. Department of Commerce, International Trade Administration.

a Includes civil and military products, c.i.f. (Cost, Insurance, and Freight) basis.

r Revised.

AEROSPACE FACTS AND FIGURES 1995/1996

U.S. EXPORTS OF AEROSPACE PRODUCTS

Calendar Years 1991–1994
(Millions of Dollars)

Aerospace Exports	1991	1992	1993	1994
TOTAL	\$43,788	\$45,018	\$39,418	\$37,373
TOTAL CIVIL	\$35,548	\$36,904	\$31,821	\$30,049
Complete Aircraft—TOTAL	<u>\$22,385</u>	<u>\$24,333</u>	<u>\$19,844</u>	<u>\$17,735</u>
Transports	20,881	22,379	18,146	15,931
General Aviation ^a	576	581	551	598
Helicopters	168	118	120	82
Used Aircraft	738	1,244	1,014	1,113
Other, Incl. Spacecraft ^b	176	180	293	309
Aircraft Engines—TOTAL	<u>2,127</u>	<u>2,346</u>	<u>2,333</u>	<u>2,386</u>
Turbine Engines	2,050	2,271	2,246	2,292
Piston Engines	77	74	87	94
Aircraft and Engine Parts				
Incl. Spares—TOTAL	<u>10,878</u>	<u>10,048</u>	<u>9,178</u>	<u>9,628</u>
Aircraft Parts & Accessories	6,859	6,545	6,206	6,319
Aircraft Engine Parts	4,018	3,503	3,152	3,309
TOTAL MILITARY	\$ 8,239	\$ 8,114	\$ 7,598	\$ 7,324
Complete Aircraft—TOTAL^c	<u>\$ 1,788</u>	<u>\$ 2,086</u>	<u>\$ 1,462</u>	<u>\$ 1,096</u>
Fighters & Fighter Bombers	323	1,288	764	248
Transports	633	149	—	140
Helicopters	587	422	607	410
Used Aircraft	146	81	46	270
Other, Incl. Spacecraft ^b	253	315	313	303
Aircraft Engines—TOTAL	<u>206</u>	<u>229</u>	<u>190</u>	<u>251</u>
Turbine Engines	171	199	155	188
Piston Engines	35	30	35	63
Aircraft and Engine Parts				
Incl. Spares—TOTAL	<u>4,891</u>	<u>4,208</u>	<u>4,448</u>	<u>4,692</u>
Aircraft Parts & Accessories	4,202	3,603	3,857	4,163
Aircraft Engine Parts	689	605	591	530
Guided Missiles, Rockets, & Parts—TOTAL	<u>1,200</u>	<u>1,422</u>	<u>1,230</u>	<u>1,009</u>
Guided Missiles & Rockets	298	576	485	340
Missile & Rocket Parts	899	839	745	669
Missile & Rocket Engines	3	6	1	1
Missile & Rocket Engine Parts ..	—	—	—	—

Source: Aerospace Industries Association, based on data from International Trade Administration.

^a All fixed-wing aircraft under 33,000 pounds.

^b Products within this category are not designated civil or military by the Harmonized Tariff Schedules. Historically, aircraft herein have been predominantly civil. Also, spacecraft not included in "Complete Aircraft—Total."

^c Includes aircraft exported under Military Assistance Programs and Foreign Military Sales.

FOREIGN TRADE

U.S. IMPORTS OF AEROSPACE PRODUCTS

Calendar Years 1991–1994
(Millions of Dollars)

Aerospace Imports	1991	1992	1993	1994
TOTAL	\$13,003	\$13,662	\$12,183	\$12,363
TOTAL CIVIL	\$ 9,268	\$ 9,719	\$ 8,627	\$ 8,792
Complete Aircraft—TOTAL	\$ 3,413	\$ 3,866	\$ 3,725	\$ 3,787
Transports	1,285	2,007	2,005	1,361
General Aviation	1,567	1,375	1,238	1,711
Helicopters	289	179	231	317
Other, including Used Aircraft, & Gliders, Balloons, & Airships ^a ..	272	305	251	398
Aircraft Engines—TOTAL	1,226	1,346	1,312	1,400
Turbine Engines ^b	1,185	1,330	1,291	1,346
Piston Engines	42	16	20	55
Aircraft & Engine Parts—TOTAL ...	4,629	4,507	3,590	3,605
Aircraft Parts and Accessories ^b ...	3,166	2,726	2,059	2,093
Turbine Engine Parts ^b	1,279	1,516	1,309	1,231
Piston Engine Parts	43	46	39	51
Spacecraft, Other Parts & Accessories ^c	141	220	183	230
TOTAL MILITARY	\$ 3,735	\$ 3,943	\$ 3,555	\$ 3,571
Complete Aircraft—TOTAL	\$ 26	\$ 55	\$ 13	\$ 22
Aircraft Engines—TOTAL	1,203	1,368	1,313 ^r	1,386
Turbine Engines ^b	1,185	1,330	1,291	1,346
Piston Engines Including Parts	18	38	22 ^r	40
Aircraft & Engine Parts—TOTAL ...	2,507	2,521	2,229	2,163
Aircraft Parts ^b	1,033	717	655	635
Turbine Engine Parts ^b	1,238	1,484	1,285	1,212
Spacecraft, Missiles, Rockets, Other Parts, & Accessories ^{bc} ...	236	320	289	317

Source: Aerospace Industries Association, based on data from International Trade Administration.

NOTE: International trade reported using Harmonized Tariff Schedules after 1989.

^a Products within this category are not designated civil or military by the Harmonized Tariff Schedules. Historically, these products have been predominantly civil.

^b Category contains products whose use (civil or military) is unspecified by the Harmonized Tariff Schedules. Figures for those products distributed equally between civil and military.

^c Includes satellites, propulsion engines, and parachutes.

^r Revised.

AEROSPACE FACTS AND FIGURES 1995/1996

U.S. EXPORTS OF MILITARY AIRCRAFT^a

Calendar Years 1990–1994

	1990	1991	1992	1993	1994
TOTAL NUMBER OF AIRCRAFT ...	445	490	428	632	437
Fighters and Fighter Bombers	39	16	65	47	14
Transports	43	40	4	—	3
Helicopters	47	72	61	93	88
New Aircraft, NEC	258	227	201	378	241
Used or Rebuilt Aircraft	58	135	97	114	91
TOTAL VALUE (Millions of Dollars) .	\$1,481	\$1,784	\$2,083	\$1,460	\$1,094
Fighters and Fighter Bombers	\$ 533	\$ 323	\$1,288	\$ 764	\$ 248
Transports	432	633	149	—	140
Helicopters	381	587	422	607	410
New Aircraft, NEC	60	97	51	32	28
Used or Rebuilt Aircraft	75	144	174	57	268

Source: Aerospace Industries Association, based on data from the International Trade Administration.

a Includes aircraft exported under Military Assistance Programs and Foreign Military Sales.

NEC Not elsewhere classified.

r Revised

FOREIGN TRADE

U.S. EXPORTS OF CIVIL AIRCRAFT

Calendar Years 1990-1994

Civil Aircraft Exports	1990	1991	1992	1993	1994
TOTAL NUMBER OF AIRCRAFT^a ..	3,375	3,071	1,988	1,533	1,437
Helicopters—TOTAL	349	318	212	175	154
Under 2,200 lbs	266	246	175	143	118
Over 2,200 lbs	83	72	37	32	36
General Aviation—TOTAL	809	534	358	333	385
Single-Engine	561	345	186	97	125
Multi-Engine, Under 4,400 lbs ...	33	22	19	104	124
Multi-Engine, 4,400-10,000 lbs ..	136	98	93	74	67
Multi-Engine, 10,000-33,000 lbs .	79	69	60	58	69
Transports—TOTAL	306	385	387	278	222
Passenger Aircraft, Over 33,000 lbs	294	371	376	272	216
Cargo Aircraft, Over 33,000 lbs ..	3	5	1	2	4
Other, Over 33,000 lbs, Incl. Pass./Cargo Combi	9	9	10	4	2
Other Aircraft—TOTAL^a	1,911	1,834	1,031	747	676
Used or Rebuilt Aircraft	1,911	1,834	1,031	747	676
Other Aircraft, Including Balloons, Gliders, & Kites	1,448	1,133	386	452	451
TOTAL VALUE (Millions of Dollars)	\$18,150	\$22,385	\$24,333	\$19,844	\$17,735
Helicopters—TOTAL	\$ 161	\$ 168	\$ 118	\$ 120	\$ 82
Under 2,200 lbs	39	40	35	37	24
Over 2,200 lbs	123	129	83	83	58
General Aviation—TOTAL	555	576	581	551	598
Single-Engine	44	40	61	36	46
Multi-Engine, Under 4,400 lbs ...	10	8	12	22	23
Multi-Engine, 4,400-10,000 lbs ..	256	249	213	169	182
Multi-Engine, 10,000-33,000 lbs .	245	279	295	324	348
Transports—TOTAL	16,691	20,881	22,379	18,146	15,931
Passenger Aircraft, Over 33,000 lbs	15,307	19,349	21,252	17,237	15,063
Cargo Aircraft, Over 33,000 lbs ..	264	405	37	299	556
Other, Over 33,000 lbs, Incl. Pass./Cargo Combi	1,121	1,127	1,090	611	312
Other Aircraft—TOTAL	742	760	1,256	1,027	1,124
Used or Rebuilt Aircraft	712	738	1,244	1,014	1,113
Other Aircraft, Including Balloons, Gliders, & Kites	30	23	12	12	11

Source: Aerospace Industries Association, based on data from International Trade Administration.

NOTE: International trade reported using Harmonized Tariff Schedules after 1988.

a Numbers of gliders, balloons, & kites excluded from civil aircraft totals.

AEROSPACE FACTS AND FIGURES 1995/1996

U.S. IMPORTS OF COMPLETE AIRCRAFT

Calendar Years 1991-1994

Aircraft Imports	1991	1992	1993	1994
TOTAL NUMBER OF AIRCRAFT	1,036	1,024	1,384	1,762
Civil Aircraft—TOTAL	<u>955</u>	<u>949</u>	<u>1,330</u>	<u>1,679</u>
New Complete Aircraft:				
Helicopters	244	148	159	216
General Aviation:				
Single-Engine	72	67	96	105
Multi-Engine, Under 4,400 lbs	1	7	—	8
Multi-Engine, 4,400-10,000 lbs ...	41	18	6	2
Multi-Engine, Turbojet/Turbofan, 10,000-33,000 lbs	45	52	66	82
Multi-Engine, Other, Including Turboshaft, 10,000-33,000 lbs ...	95	72	44	64
Transports, Multi-Engine, Over 33,000 lbs	44	64	54	38
Other Civil Aircraft:				
Used or Rebuilt	246	176	258	328
Aircraft Previously Exported from U.S.	NA	NA	NA	NA
Gliders ^a	140	327	587	783
Balloons & Airships ^a	27	18	60	53
Military Aircraft—TOTAL	<u>81^b</u>	<u>75^b</u>	<u>54^b</u>	<u>84^b</u>
New Complete Aircraft	8	11	3	21

(Continued on next page)

FOREIGN TRADE

U.S. IMPORTS OF COMPLETE AIRCRAFT
(Continued)

Aircraft Imports	1991	1992	1993	1994
VALUE (Millions of Dollars)	\$3,438.1	\$3,920.7	\$3,738.3	\$3,808.8
Civil Aircraft—TOTAL	<u>\$3,412.7</u>	<u>\$3,866.2</u>	<u>\$3,725.2</u>	<u>\$3,786.6</u>
New Complete Aircraft:				
Helicopters	288.8	179.2	231.4	316.7
General Aviation:				
Single-Engine	23.4	24.6	28.6	65.9
Multi-Engine, Under 4,400 lbs .	0.0	3.1	—	2.8
Multi-Engine, 4,400-10,000 lbs .	176.3	75.7	14.8	2.4
Multi-Engine, Turbojet/Turbofan, 10,000-33,000 lbs	526.9	612.0	792.3	1,030.4
Multi-Engine, Other, Including Turboshaft, 10,000-33,000 lbs	840.3	659.5	402.1	609.4
Transports, Multi-Engine, Over 33,000 lbs	1,285.3	2,006.9	2,005.1	1,361.3
Other Civil Aircraft:				
Used or Rebuilt	269.5	301.4	245.7	390.5
Aircraft Previously Exported from U.S.	—	—	—	—
Gliders ^a	0.9	2.3	2.1	2.3
Balloons & Airships ^a	1.3	1.4	3.2	4.7
Military Aircraft—TOTAL	<u>\$ 25.5^b</u>	<u>\$ 54.6^b</u>	<u>\$ 13.1^b</u>	<u>\$ 22.2^b</u>
New Complete Aircraft	21.0	46.0	9.9	13.6

Source: Aerospace Industries Association, based on data from International Trade Administration.

a Products within this category are not designated civil or military by the Harmonized Tariff Schedules. Historically, these products have been predominantly civil.

b Includes used aircraft.

NA Not available.

AEROSPACE FACTS AND FIGURES 1995/1996

U.S. EXPORTS OF COMMERCIAL TRANSPORT AIRCRAFT^a
Calendar Years 1990–1994

Region of Destination	1990	1991	1992	1993	1994
TOTAL NUMBER EXPORTED	306	385	387	278	222
Canada & Greenland	4	3	7	2	—
Latin America & Caribbean	25	32	40	14	8
Europe	172	228	171	89	82
Middle East	9	16	17	13	13
Asia	70	83	120	146	108
Oceania	16	14	23	8	7
Africa	10	9	9	6	4
TOTAL VALUE (Millions of Dollars)	\$16,691	\$20,881	\$22,379	\$18,146	\$15,931
Canada & Greenland	\$ 309	\$ 221	\$ 610	\$ 114	\$ —
Latin America & Caribbean	1,001	1,472	1,904	805	420
Europe	8,166	10,461	8,105	5,130	5,451
Middle East	440	648	625	517	957
Asia	5,010	6,382	9,201	10,840	8,451
Oceania	1,256	1,177	1,461	351	510
Africa	509	520	471	389	144

Source: Aerospace Industries Association, based on data from the International Trade Administration.
a Airframe weight exceeding 33,000 pounds.

FOREIGN TRADE

U.S. EXPORTS OF CIVIL HELICOPTERS^a

Calendar Years 1990-1994

Region of Destination	1990	1991	1992	1993	1994
TOTAL NUMBER EXPORTED	349	318	212	175	154
Canada & Greenland	11	20	8	11	5
Latin America & Caribbean	46	45	46	67	43
Europe	140	125	91	61	62
Middle East	1	2	3	2	2
Asia	65	66	39	21	26
Oceania	68	38	19	13	11
Africa	18	22	6	—	5
TOTAL VALUE (Millions of Dollars)	\$161.2	\$168.4	\$117.7	\$120.1	\$82.1
Canada & Greenland	\$ 5.1	\$ 7.9	\$ 5.0	\$ 6.2	\$ 1.9
Latin America & Caribbean	20.1	19.6	26.2	24.8	20.0
Europe	46.8	56.3	38.2	62.2	18.7
Middle East	3.6	16.5	2.2	0.5	0.6
Asia	71.3	59.2	42.5	24.4	30.8
Oceania	8.7	5.7	2.3	1.9	9.0
Africa	5.6	3.1	1.3	—	1.2

Source: Aerospace Industries Association, based on data from the International Trade Administration.

a Excludes used helicopters.

U.S. IMPORTS OF CIVIL HELICOPTERS^a

Calendar Years 1990-1994

Country of Origin	1990	1991	1992	1993	1994
TOTAL NUMBER IMPORTED	167	244	148	159	216
Canada	82	146	104	114	169
France	49	57	25	22	29
Germany	25	30	16	18	14
Italy	11	10	1	3	2
Others ^b	—	1	2	2	2
TOTAL VALUE (Millions of Dollars)	\$162.4	\$288.8	\$179.2	\$231.4 ^r	\$316.7
Canada	\$ 86.3	\$182.1	\$147.4	\$176.1	\$274.6
France	29.9	53.6	14.0	28.6	29.6
Germany	34.9	35.6	14.8	15.0	11.7
Italy	11.3	16.9	2.1	9.1	0.0
Others ^b	—	0.7	0.9	2.5	0.8

Source: Aerospace Industries Association, based on data from the International Trade Administration.

a Excludes used helicopters.

b Includes 1 from New Zealand in 1991; 2 from Japan in 1992; 1 from Japan and 1 from Russia in 1993; and 2 from United Kingdom in 1994.

r Revised.

AEROSPACE FACTS AND FIGURES 1995/1996

U.S. EXPORTS OF GENERAL AVIATION AIRCRAFT^a
Calendar Years 1990–1994

Region of Destination	1990	1991	1992	1993	1994
TOTAL NUMBER EXPORTED ..	809	534	358	333	385
Canada & Greenland	34	9	21	20	29
Latin America & Caribbean	133	80	78	59	81
Europe	379	317	142	115	94
Middle East	15	11	13	16	28
Asia	55	54	47	77	91
Oceania	72	18	22	15	25
Africa	121	45	35	31	37
TOTAL VALUE (Millions of Dollars)	\$554.9	\$576.0	\$580.8	\$550.5	\$598.2
Canada & Greenland	\$ 41.7	\$ 31.2	\$ 55.3	\$ 27.5	\$ 44.9
Latin America & Caribbean	152.8	142.9	191.8	117.5	203.1
Europe	197.1	253.1	169.5	163.4	128.1
Middle East	18.1	21.7	17.9	65.2	13.0
Asia	47.9	95.0	36.3	106.8	112.6
Oceania	22.0	6.9	41.0	27.2	51.7
Africa	75.3	25.2	69.0	42.9	44.9

Source: Aerospace Industries Association, based on data from the International Trade Administration.
^a All fixed-wing aircraft under 33,000 pounds.

FOREIGN TRADE

U.S. IMPORTS OF GENERAL AVIATION AIRCRAFT^a

Calendar Years 1990-1994

Country of Origin	1990	1991	1992	1993	1994
TOTAL NUMBER IMPORTED ...	301	254	216	212	261
Brazil	51	24	21	15	7
Canada	32	42	50	33	50
France	93	92	81	66	63
Germany, West	(b)	(b)	4	14	41
Israel	12	8	5	7	5
Japan	—	—	—	2	—
Poland	(b)	(b)	4	20	23
Russia	(b)	(b)	5	20	14
United Kingdom	77	48	37	26	40
Other	36	40	9	9	18
TOTAL VALUE (Millions of Dollars)	\$1,581.2	\$1,566.8	\$1,374.9	\$1,237.8	\$1,711.0
Brazil	\$ 306.9	\$ 152.2	\$ 136.3	\$ 94.2	\$ 49.5
Canada	354.7	469.8	527.2	466.2	625.4
France	336.2	469.9	388.9	410.4	556.3
Germany, West	(b)	(b)	0.6	2.2	156.8
Israel	70.6	51.7	33.6	45.9	29.7
Japan	—	—	—	1.0	—
Poland	(b)	(b)	0.3	1.9	1.9
Russia	(b)	(b)	0.6	2.0	1.7
United Kingdom	414.6	276.9	235.1	201.6	277.7
Other	98.1	146.3	52.3	12.4	172.4

Source: Aerospace Industries Association, based on data from the International Trade Administration.

^a All fixed-wing aircraft under 33,000 pounds.^b Previously included in Other.

U.S. EXPORTS OF AIRCRAFT ENGINES

Calendar Years 1992-1994
(Values in Millions of Dollars)

	1992		1993		1994	
	Number	Value	Number	Value	Number	Value
TOTAL	10,742	\$2,575	10,633	\$2,524	9,226	\$2,637
Turbine Engines	3,464	\$2,471	3,020	\$2,401	2,428	\$2,480
Civil	2,250	2,271	2,283	2,246	1,903	2,292
Military	1,214	199	737	155	525	188
Piston Engines	7,278	104	7,613	123	6,798	157
Civil, New, Under 500 HP .	782	13	703	13	895	20
Civil, New, Over 500 HP ..	115	3	98	5	123	3
Civil, Used	3,743	58	3,792	69	2,462	70
Military	2,638	30	3,020	35	3,318	63

Source: Aerospace Industries Association, based on data from the International Trade Administration.

U.S. IMPORTS OF AIRCRAFT ENGINES^a

Calendar Years 1992-1994
(Values in Millions of Dollars)

	1992		1993		1994	
	Number	Value	Number	Value	Number	Value
Turbine Engines	1,961	\$2,660	2,401	\$2,583	2,297	\$2,691
Piston Engines	2,987	43	2,517	31	4,460	84
Military	1,828	27	2,182	11	2,475	30
Civil, New, Small	337	1	124	1	165	1
Civil, New, Large	466	1	33	6	1,545	42
Civil, Used	356	14	178	14	275	12

Source: Aerospace Industries Association, based on data from the International Trade Administration.

a New and used.

FOREIGN TRADE

EXPORT-IMPORT BANK LENDING AUTHORITY
AND GROSS AUTHORIZATIONS SUMMARYFiscal Years 1984–1994
(Millions of Dollars)

LOANS

Year	Lending Authority	Authorizations Summary		
		Direct Loans ^a		
		TOTAL	Direct Credits	Other ^b
1984	\$ 3,865	\$ 1,465	\$1,122	\$ 343
1985	3,865	659	320	339
1986	1,059	578	371	207
1987	680	599	332	267
1988	693	685	465	220
1989	719	695	517	202
1990	614	614	318	296
1991	750	777	425	352
1992	(c)	817	661	156
1993	(c)	1,748	1,635	113
1994	(c)	3,016	2,980	37

GUARANTEES AND INSURANCE

Year	Lending Authority	Authorizations Summary		
		TOTAL	Guarantees	Insurance
1984	\$10,000	\$ 7,151	\$1,333	\$5,818
1985	10,000	7,850	1,320	6,530
1986	11,484 ^d	5,508	1,128	4,380
1987	11,355	7,958	1,514	6,444
1988	13,406	5,735	601	5,134
1989	17,901	5,637	1,292	4,345
1990	10,191	8,174	3,333	4,841
1991	11,349	10,588	6,034	4,554
1992	(c)	11,521	7,301	4,220
1993	(c)	13,324	9,095	4,229
1994	(c)	11,870	7,609	4,261

Source: Export-Import Bank of the United States.

a The value of Direct Loans may exceed Lending Authority because of the inclusion in Direct Loans of the full amount of Certificates of Loan, portions of which are subsequently sold to commercial banks.

b Includes discount loans, medium term, and small business credits.

c No lending limit set on the value of loans or guarantees and insurance beginning with 1992. Instead the subsidy cost of these transactions limited to \$603 million in 1992 and \$757 million in 1993. However, in 1993, the combined value of loans, guarantees, and insurance transactions could not exceed \$15.5 billion.

d Includes \$1,800 million proposed I-MATCH Program which would replace direct lending and would allow an estimated \$100 million in commercial loan interest buy-down.

AEROSPACE FACTS AND FIGURES 1995/1996

EXPORT-IMPORT BANK
TOTAL AUTHORIZATIONS OF LOANS AND GUARANTEES
AND AUTHORIZATIONS IN SUPPORT OF AIRCRAFT EXPORTS
Fiscal Years 1980-1994
(Millions of Dollars)

Year	TOTAL AUTHORI- ZATIONS	Authorizations in Support of Aircraft Exports			
		TOTAL	Percent of TOTAL Authori- zations	Commercial Jet Aircraft ^a	Other Aircraft ^b
LOANS ^c					
1980	\$4,578	\$1,743.3	38.1 %	\$1,692.6	\$ 50.7
1981	5,431	2,576.6	47.4	2,550.3	26.3
1982	3,516	263.9	7.5	199.1	64.8
1983	845	396.7	46.9	383.8	12.9
1984	1,465	608.0	41.5	531.8	76.2
1985	659	39.7	6.0	12.6	27.1
1986	578	54.6	9.4	46.4	8.2
1987	599	17.0	2.8	13.3	3.7
1988	685	—	—	—	—
1989	695	166.4	23.9	158.0	8.4
1990	614	5.0	0.8	—	5.0
1991	777	—	—	—	—
1992	817	—	—	—	—
1993	1,748	—	—	—	—
1994	3,016	—	—	—	—
GUARANTEES					
1980	\$2,510	\$1,131.9	45.1 %	\$1,088.1	\$ 43.8
1981	1,506	562.6	37.4	533.4	29.2
1982	727	104.2	14.3	78.4	25.8
1983	1,741	629.6	36.2	601.3	28.3
1984	1,333	355.5	26.7	293.5	62.0
1985	1,320	322.4	24.4	288.9	33.5
1986	1,128	329.2	29.2	277.4	51.8
1987	1,514	808.3	53.4	808.3	—
1988	601	89.2	14.8	73.4	15.8
1989	1,292	496.4	38.4	390.4	106.0
1990	3,333	1,666.3	50.0	224.7	1,441.6
1991	6,034	606.0	10.1	566.9	40.0
1992	7,301	1,667.0	22.8	1,597.1	69.9
1993	9,095	3,488.6	38.4	3,488.6	—
1994	7,609	2,959.0	38.9	2,959.0	—

Source: Export-Import Bank of the United States.

a Includes complete aircraft, engines, parts, and retrofits.

b Includes business aircraft, general aviation aircraft, helicopters, and related goods and services.

c Loans are commitments for financing by the Eximbank to foreign buyers of U.S. equipment and services, which are made to commercial banks and may subsequently be guaranteed by the Eximbank, in which case the value of the loans is also included with Guarantees.

d Guarantees by the Export-Import Bank provide assurances of repayment of principal and interest on loans made by private lending institutions, such as commercial banks, for major export transactions. Excludes insurance.

FOREIGN TRADE

**EXPORT-IMPORT BANK
SUMMARY OF COMMERCIAL JET AIRCRAFT AUTHORIZATIONS
FOR LOANS^a AND GUARANTEES^b**

Fiscal Years 1976-1994
(Values in Millions of Dollars)

Year	No. of Jet Aircraft ^c		Export Value ^c		No. of New Commitments		Gross Authorizations	
	Loans	Guar-antees	Loans	Guar-antees	Loans	Guar-antees	Loans	Guar-antees
New Authorizations:								
1976	77	6	\$1,017	\$ 139	34	11	\$ 398	\$ 87
Tr.Qtr.	15	5	219	182	6	3	94	59
1977	31	25	330	902	16	14	138	294
1978	29	5	479	253	18	5	189	77
1979	118	7	2,938	317	35	10	1,399	239
1980	136	21	3,975	901	36	24	1,693	1,088
1981	121	18	4,568	637	26	17	2,550	533
1982	11	6	441	113	5	2	199	78
1983	21	9	779	619	3	4	384	601
1984	37	8	1,023	327	7	4	532	294
1985	—	14	19	481	1	5	13	289
1986	3	13	74	451	1	9	46	277
1987	—	27	22	1,449	1	14	13	808
1988	—	2	—	94	—	2	—	73
1989	3	5	253	459	1	2	158 ^r	390 ^r
1990	—	6	—	264	—	2	—	225
1991	—	12	—	665	—	3	—	567
1992	—	37	—	1,889	—	12	—	1,597
1993	—	70	—	4,122	—	27	—	3,489
1994	—	59	—	3,507	—	19	—	2,959

Source: Export-Import Bank of the United States.

a Loans are commitments for direct financing by the Export-Import Bank to foreign buyers of U.S. equipment and services, which are made by the Export-Import Bank to commercial banks and which subsequently may be guaranteed by the Export-Import Bank in which case the value of the loans is included with Guarantees.

b Guarantees by the Export-Import Bank provide assurances of repayment of principal and interest on loans made by private lending institutions, such as commercial banks, for major export transactions.

c For Export-Import Bank commitments including both loan and guarantee authorization, number of aircraft and export value reported under "Loans."

r Revised.

Tr.Qtr. See Glossary.

**EXPORT-IMPORT BANK
AUTHORIZATIONS OF LOANS AND GUARANTEES
IN SUPPORT OF EXPORTS OF COMMERCIAL JET AIRCRAFT**

Fiscal Years 1993–1994
(Values in Millions of Dollars)

Customer (Country/Airline)	Number and Aircraft Model or Related Product	Export Value	Authorizations				
			Loans (Direct Credits)				Guar- antees
			Amount	Percent Cover- age ^a	Interest Rate	Repay- ment Terms ^b	
FY 1994							
TOTALS	59 aircraft	\$3,507	—	—	—	—	\$2,959
Australia/Ansett Worldwide Aviation Services	3 x 737, 3 x 757, 1 x 767	\$ 299	—	—	—	—	\$ 227
Brazil/Varig	2 x MD-11	209	—	—	—	—	178
China/China Eastern Airlines	1 x MD-11	118	—	—	—	—	98
China/China Southern Airlines	9 x 737, 2 x 757	380	—	—	—	—	325
China/China Southwest Airlines	2 x 737, 4 x 757	233	—	—	—	—	199
China/China Xinhua Airlines	4 x 737	139	—	—	—	—	118
China/China Xinjiang Airlines	3 x 737	97	—	—	—	—	82
China/Shanghai Airlines ..	1 x 757	48	—	—	—	—	41
Hong Kong/Cathay Pacific Airways	2 x 747	217	—	—	—	—	185
Italy/Alitalia-Linee Aeree Italiane	2 x MD-11, 7 x MD-80	439	—	—	—	—	370
Korea/Asiana Airlines	3 x 747, 1 x 767	499	—	—	—	—	427
Korea/Korean Airlines	3 x 747	386	—	—	—	—	328
Morocco/Royal Air Moroc	2 x 737	69	—	—	—	—	59
Philippines/Philippine Airlines	2 x 747	258	—	—	—	—	220
Poland/LOT Polish Airlines	1 x 737, 1 x 767	117	—	—	—	—	100

(Continued on next page)

FOREIGN TRADE

**EXPORT-IMPORT BANK
LOAN AND GUARANTEE AUTHORIZATIONS**
(Continued)

Customer (Country/Airline)	Number and Aircraft Model or Related Product	Export Value	Authorizations				
			Loans (Direct Credits)			Guar- antees	
			Amount	Percent Cover- age ^a	Interest Rate		Repay- ment Terms ^b
FY 1993							
TOTALS	70 aircraft	\$4,122	—	—	—	—	\$3,489
Argentina/Various	7 x MD-80	\$ 206	—	—	—	—	\$ 176
Australia/Australian Airlines	2 x 737	64	—	—	—	—	55
Austria/Lauda Air	1 x 737,						
	1 x 767	107	—	—	—	—	91
Bahrain/Gulf Air	2 x 767	146	—	—	—	—	125
Brazil/Varig	2 x MD-11	210	—	—	—	—	173
Canada/Air Canada	1 x 767	76	—	—	—	—	58
China/China Eastern Airlines	1 x MD-11	113	—	—	—	—	95
China/Shanghai Airlines ..	2 x 757	232	—	—	—	—	197
China/Air China	2 x 737	64	—	—	—	—	51
China/Xiamen Airlines ...	2 x 757	105	—	—	—	—	89
Hungary/Malev Hungarian Airlines	2 x 767	148	—	—	—	—	126
Indonesia/Ministry of Finance of Indonesia ...	7 x 737,						
	2 x 747	618	—	—	—	—	527
Israel/El Al-Israel Airlines .	2 x 747	321	—	—	—	—	274
Italy/Alitalia-Lineee Aeree Italiane	4 x MD-80,						
	1 x MD-11	227	—	—	—	—	191
Luxembourg/Luxair	2 x 737	58	—	—	—	—	49
Luxembourg/Cargolux Airlines International S.A.	2 x 747	278	—	—	—	—	238
Malaysia/Malaysian Airline System	13 x 737,						
	1 x 747	541	—	—	—	—	455
Malta/Air Malta	1 x 737	33	—	—	—	—	29
Nauru/Victoria Aircraft Leasing Corporation	2 x 737	78	—	—	—	—	67
Norway/Braathens S.A.F.E.	2 x 737	54	—	—	—	—	46
Romania/TAROM-Romanian Air Transport	2 x 737	57	—	—	—	—	49
South Africa/Transnet, Ltd.	2 x 747	222	—	—	—	—	189
Thailand/Thai Airways ...	1 x 747	135	—	—	—	—	115
Tunisia/Society Tunisienne de L'Air	1 x 737	29	—	—	—	—	24

Source: Aerospace Industries Association, based on data from the Export-Import Bank of the United States.

NOTE: For definitions of Loans and Guarantees, see Export-Import Bank tables on previous pages.

^a Amount of loan as percent of export value.^b Number of payments and frequency (S=semi-annual).

Employment

In 1994, the aerospace industry's employment level continued its downward slide under the pressure of a dual recession, wherein the industry's two main business segments—defense production and commercial aircraft manufacture—were simultaneously depressed.

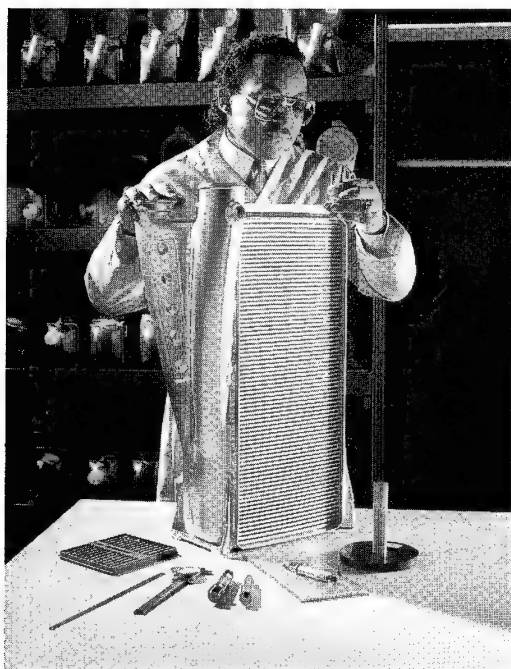
On an annual average employment basis, the aerospace labor force was reduced by almost 12 percent to a level of 852,000. The drop marked the fifth straight decline since the industry attained its all-time peak employment level in 1989; the cumulative manpower loss over those five years represented

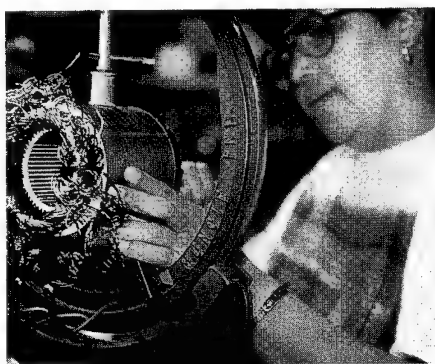
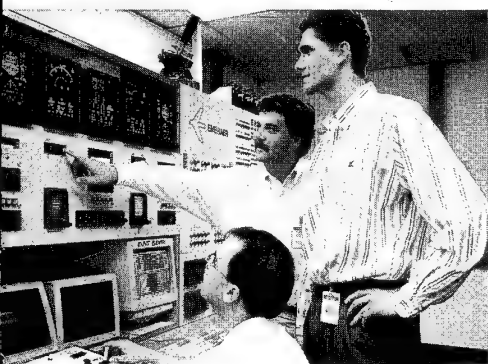
more than 35 percent of the peak total.

The 1994 employment figure amounted to 4.7 percent of the total employment in all U.S. manufacturing industries; that compared with 5.4 percent in the previous year and 6.8 percent in the aerospace peak year 1989. Aerospace employment in 1994 also represented 8.3 percent of total employment by U.S. companies producing durable goods; the comparable figures were 9.5 percent in 1993 and 11.5 percent in 1989.

The industry segment engaged in manufacture of aircraft, engines, and parts, which is the largest segment in terms of employment, once again experienced the greatest loss of jobs. In that segment, annual average employment was 480,000, down 11 percent from 542,000 in 1993. Proportionately, however, the industry segment producing missile and space systems suffered a larger loss, almost 13 percent; the labor force in that segment fell from 124,000 in 1993 to 108,000 in 1994. Employment in all other (aerospace-related) manufacturing dipped from 300,000 to 265,000, a drop of 11.7 percent.

The total aerospace payroll for 1994 was \$28.3 bil-





lion, down from the previous year's \$30.5 billion; both figures include lump-sum payments made by many aerospace companies in lieu of general wage increases or cost-of-living increases.

Payments to individual aerospace workers, however, continued to rise. Average weekly earnings, again including lump-sum payments plus overtime premiums, came to \$755, up from \$725 in 1993. Average hourly earnings amounted to \$17.97, up from \$17.44.

The Pacific region again dominated a geographic breakdown of aerospace employment in 1994. The Pacific region led with 42.9 percent of the total, followed by the West North Central (9.8 percent); South Central (9.6 percent); South Atlantic (9.3 percent); East North Central (8.7 percent); New England (8.4 percent); Mountain (7.7 percent), and Middle Atlantic (3.6 percent) regions.

The Pacific region also led in

most product group breakdowns of employment. In the civil aircraft sector, employment at Pacific-based companies constituted 53.8 percent of the total while companies in the East North Central region represented 15.6 percent and the South Central states accounted for 13.5 percent.

In military aircraft production, however, the West North Central states placed first with 19.8 percent of total employment, followed by those in the Pacific (18.3 percent) and New England (17.5 percent) regions.

The Pacific region had the largest share of workers engaged in missile and space system manufacture. The breakdown was: Missiles—Pacific (46.3 percent), Mountain (27.5 percent), and South Atlantic and South Central combined (15.2 percent); Space—Pacific (53.5 percent), South Atlantic (21.6 percent), and Mountain (14.3 percent).

AEROSPACE FACTS AND FIGURES 1995/1996

**ANNUAL AVERAGE EMPLOYMENT IN ALL MANUFACTURING,
DURABLE GOODS, AND AEROSPACE INDUSTRIES**

Calendar Years 1979–1994
(Thousands of Employees)

Year	All Manu- facturing Industries	Durable Goods Industries	Aerospace Industry ^a		
			TOTAL	As Percent of	
				All Manufac- turing	Durable Goods
1979	21,040	12,730	1,007	4.8%	7.9%
1980	20,285	12,159	1,080	5.3	8.9
1981	20,170	12,082	1,087	5.4	9.0
1982	18,780	11,014	1,038	5.5	9.4
1983	18,432	10,707	1,019	5.5	9.5
1984	19,372	11,476	1,058	5.5	9.2
1985	19,248	11,458	1,151	6.0	10.1
1986	18,947	11,195	1,241	6.6	11.1
1987	18,999	11,154	1,282	6.8	11.5
1988	19,314	11,363	1,294	6.7	11.4
1989	19,391	11,394	1,314	6.8	11.5
1990	19,076	11,109	1,302	6.8	11.7
1991	18,406	10,569	1,214	6.6	11.5
1992	18,104	10,277	1,100	6.1	10.7
1993	18,003	10,172	966	5.4	9.5
1994	18,063	10,267	852	4.7	8.3

Source: Bureau of Labor Statistics, "Employment and Earnings" (Monthly) and Aerospace Industries Association estimates.

a See Glossary for detailed explanation of "Aerospace Employment."

EMPLOYMENT

ANNUAL PAYROLL AEROSPACE INDUSTRY AND ALL MANUFACTURING INDUSTRIES

Calendar Years 1979-1994
(Millions of Dollars)

Year	All Manufacturing Industries ^a	Aerospace Industry ^b			Aerospace As Percent of All Manufacturing
		TOTAL	Production Workers	Other Workers	
1979	\$334,800	\$15,150	\$ 6,465	\$ 8,685	4.5 %
1980	355,600	18,026	7,658	10,368	5.1
1981	386,700	19,906	8,152	11,754	5.1
1982	384,000	20,750	8,043	12,707	5.4
1983	397,400	21,644	8,071	13,573	5.4
1984	439,100	23,773	8,746	15,027	5.4
1985	460,900	26,749	9,837	16,911	5.8
1986	473,200	29,547	11,038	18,509	6.2
1987	490,300	31,101	11,700	19,401	6.3
1988	524,000	32,566	11,744	20,822	6.2
1989	541,800	34,154	12,440	21,714	6.3
1990	556,100	35,590	13,020	22,570	6.4
1991	556,900	34,520	12,536	21,984	6.2
1992	577,600	33,123 ^r	11,812 ^r	21,311 ^r	5.7
1993 ^r	588,400	30,391	10,673	19,718	5.2
1994	617,500	28,317	9,859	18,458	4.6

AEROSPACE — INCLUDING LUMP-SUM PAYMENTS^c

Year	TOTAL	Production Workers	Other Workers	Aerospace As Percent of All Manufacturing
1984	\$ 23,813	\$ 8,786	\$15,027	5.4 %
1985	26,782	9,871	16,911	5.8
1986	29,611	11,102	18,509	6.3
1987	31,262	11,862	19,401	6.4
1988	32,757	11,935	20,822	6.3
1989	34,396	12,682	21,714	6.3
1990	35,862	13,292	22,570	6.4
1991	34,688	12,704	21,984	6.2
1992	33,258 ^r	11,947 ^r	21,311 ^r	5.8
1993 ^r	30,548	10,830	19,718	5.2
1994	28,330	9,872	18,458	4.6

Source: Bureau of Economic Analysis, "Survey of Current Business" (Monthly) and Aerospace Industries Association estimates based on Bureau of Labor Statistics, "Employment and Earnings" (Monthly).

a See Glossary for explanation of "Payroll, All Manufacturing."

b Based on combined annual average employment and average weekly earnings for SICs 372 and 376.

c Many aerospace manufacturers have included lump-sum payments in labor settlements since late 1983 in lieu of general wage increases and/or cost of living adjustments. These payments are reported by BLS in separate wage series for SICs 3721 & 3761 and are included by AIA in the totals for production workers and all aerospace.

r Revised.

AEROSPACE FACTS AND FIGURES 1995/1996

EMPLOYMENT IN THE AEROSPACE INDUSTRY^a

Calendar Years 1980–1994
(Annual Average, Thousands of Employees)

Year	TOTAL	Aircraft, Engines, & Parts (SIC 372)	Missiles & Space Vehicles (SIC 376)	Other ^b
TOTAL EMPLOYMENT				
1980	1,080	633	111	336
1981	1,087	626	123	338
1982	1,038	584	131	323
1983	1,019	562	141	317
1984	1,058	575	154	329
1985	1,151	616	177	358
1986	1,241	656	200	386
1987	1,282	678	206	399
1988	1,294	684	208	402
1989	1,314	711	194	408
1990	1,302	712	185	405
1991	1,214	669	168	378
1992	1,100	612	146	342
1993	966	542	124	300
1994	852	480	108	265
PRODUCTION WORKERS				
1980	406	344	35	27
1981	396	333	37	26
1982	360	296	40	24
1983	342	274	46	23
1984	351	276	52	23
1985	382	295	62	25
1986	417	323	67	28
1987	434	339	67	29
1988	422	331	63	28
1989	432	344	60	29
1990	430	345	57	29
1991	399	324	48	27
1992	355	291	40	24
1993	308	252	35	20
1994	269	221	31	18

Source: Bureau of Labor Statistics, "Employment and Earnings" (Monthly) and Aerospace Industries Association estimates.

^a See Glossary for detailed explanation of "Aerospace Employment."

^b Communications, navigation, flight control, and displays (aerospace-related portions of SICs 366, 381, & 382).

EMPLOYMENT

EMPLOYMENT IN THE AIRCRAFT, ENGINES, AND PARTS INDUSTRY^a

Calendar Years 1980-1994
(Annual Average, Thousands of Employees)

Year	TOTAL (SIC 372)	Airframes (SIC 3721)	Engines and Parts (SIC 3724)	Other Parts & Equipment (SIC 3728)
TOTAL EMPLOYMENT				
1980	633.1	349.3	162.9	120.9
1981	626.4	344.2	162.5	119.8
1982	584.0	319.9	148.8	115.3
1983	561.6	304.7	140.1	116.9
1984	574.9	306.1	140.2	128.7
1985	616.2	325.6	147.5	143.2
1986	655.8	338.9	153.6	163.2
1987	678.0	356.4	158.2	163.4
1988	683.5	368.5	155.8	159.3
1989	711.0	382.2	153.5	175.2
1990	712.3	381.0	151.7	179.5
1991	669.2	355.6	143.2	170.3
1992	611.7	332.1	126.6	153.0
1993 ^r	542.0	301.4	109.2	131.4
1994	479.5	271.1	93.6	114.7

PRODUCTION WORKERS

1980	343.9	173.7	93.0	77.4
1981	332.7	167.0	92.4	73.5
1982	296.2	144.7	84.2	67.3
1983	273.9	131.5	74.7	67.1
1984	276.0	128.2	73.0	73.3
1985	294.6	135.5	74.8	82.2
1986	322.5	146.6	78.7	94.3
1987	338.5	159.1	80.5	96.3
1988	331.3	162.1	77.1	92.1
1989	343.7	167.4	76.8	99.5
1990	344.6	164.1	77.2	103.2
1991	323.6	151.6	73.1	98.8
1992	291.4	137.8	64.3	89.2
1993 ^r	252.5	122.7	53.6	76.2
1994	220.9	108.0	46.2	66.7

Source: Bureau of Labor Statistics, "Employment and Earnings" (Monthly).

a See Glossary for detailed explanation of "Aerospace Employment."

r Revised.

AEROSPACE FACTS AND FIGURES 1995/1996

**AEROSPACE INDUSTRY EMPLOYMENT^a
BY OCCUPATIONAL CLASSIFICATION**

As of December^b 1982–1995
(Thousands of Employees)

Year	TOTAL	Production Workers	Scientists & Engineers	Technicians	Others
1982	765	353	134	54	224
1983	765	344	135	55	231
1984	817	365	147	60	245
1985	898	405	163	66	264
1986	948	436	168	67	277
1987	968	436	175	69	288
1988	977	431	184	66	296
1989	992	439	198	68	287
1990	946	422	205	67	252
1991	879	386	205	60	228
1992	775	335	165	57	218
1993	676	286	148	50	191
1994 ^p	616	262	136	46	172
1995 ^E	575	247	NA	44	NA

Source: Aerospace Industries Association, company reports and Bureau of Labor Statistics, "Employment and Earnings" (Monthly).

a Totals for employment by occupational classification reflect only establishments in SICs 372, 376, 366, 381, and 382. As a result, they do not match the totals for aerospace employment by product group which include other industries with employment related to aerospace.

b End-of-year figures often differ from annual averages appearing in other tables.

E Estimate.

NA Not available.

p Preliminary.

EMPLOYMENT

**TOTAL EMPLOYMENT AND SCIENTISTS & ENGINEERS
IN COMMERCIAL TRANSPORT AIRCRAFT
& HELICOPTER MANUFACTURING ESTABLISHMENTS^a**

As of December 1982–1995

Year	Commercial Transport Aircraft		Helicopters	
	Total	Scientists & Engineers	Total	Scientists & Engineers
1982	61,800	10,200	26,500	3,100
1983	46,100	8,100	27,600	3,500
1984	54,800	8,900	31,300	3,800
1985	65,000	10,500	37,900	5,000
1986	75,300	12,500	37,400	4,000
1987	87,400	14,700	39,000	4,300
1988	98,800	16,200	36,600	4,200
1989	120,100	15,100	34,200	4,900
1990	122,400	16,700	30,600	4,500
1991	124,200	16,100	30,100	4,400
1992	111,600	14,800	28,200	4,400
1993	86,000	14,100	28,100	4,700
1994 ^p	81,200	14,200	26,900	4,600
1995 ^E	75,800	NA	24,200	4,000

Source: Aerospace Industries Association, company reports and AIA estimates.

a Includes only establishments identified as prime manufacturers of commercial transport aircraft and of civil and military helicopters. Excludes subcontractors and propulsion manufacturers.

E Estimate.

NA Not available.

p Preliminary.

GEOGRAPHIC DISTRIBUTION OF AEROSPACE EMPLOYMENT BY OCCUPATIONAL CLASSIFICATION AND PRODUCT GROUP

As of December 1994

PERCENT DISTRIBUTION BY OCCUPATION

Region	TOTAL	Production Workers	Scientists & Engineers	Technicians	All Others
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%
New England	8.4%	11.4%	6.4%	4.7%	7.9%
Middle Atlantic	3.6	3.1	4.2	1.9	4.0
East North Central	8.7	14.8	6.6	5.7	4.9
West North Central	9.8	11.5	10.9	14.6	5.8
South Atlantic	9.3	6.5	9.8	10.6	11.6
South Central	9.6	11.2	7.8	6.8	10.0
Mountain	7.7	5.4	8.9	7.3	9.3
Pacific	42.9	36.1	45.5	48.4	46.4

PERCENT DISTRIBUTION BY PRODUCT GROUP

Region ^a	Total	Aircraft		Missiles	Space	Other	
		Civil	Military			Aero	Non-Aero
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
New England	8.4%	9.4%	17.5%	3.1%	1.2%	1.2%	5.3%
Middle Atlantic	3.6		5.2		1.2%	10.6	
East North Central	8.7	15.6	9.4	8.0	1.0	20.9	7.6
West North Central	9.8	1.6	19.8				
South Atlantic	9.3	1.3	14.3	15.2	21.6	4.5	27.4
South Central	9.6	13.5	12.2		8.3	4.5	
Mountain	7.7	4.8	3.2	27.5	14.3	7.4	59.7
Pacific	42.9	53.8	18.3	46.3	53.5	50.9	

Source: Aerospace Industries Association, company reports.

NOTE: Employment in 26 surveyed aerospace manufacturing corporations accounted for approximately three-fifths of total industry employment.

a Data for two regions are combined where employment for one region within a product group represented three or fewer companies.

EMPLOYMENT

AVERAGE HOURLY EARNINGS IN THE AEROSPACE INDUSTRY

Production Workers Only
Calendar Years 1975-1994

Year	TOTAL ^a	Aircraft (SIC 372)				Guided Missiles, Space Vehicles & Parts (SIC 376)	Complete Guided Missiles, & Space Vehicles (SIC 3761)
		TOTAL ^a	Airframes (SIC 3721)	Engines & Parts (SIC 3724)	Other Parts & Equipment (SIC 3728)		
AVERAGE HOURLY EARNINGS ^b							
1975	\$ 6.00	\$ 6.00	\$ 6.21	\$ 6.04	\$ 5.47	\$ 6.02	\$ 5.99
1976	6.44	6.44	6.63	6.46	5.95	6.48	6.49
1977	6.93	6.92	7.07	7.05	6.44	7.04	7.15
1978	7.54	7.54	7.70	7.80	6.93	7.56	7.72
1979	8.26	8.26	8.50	8.53	7.48	8.25	8.38
1980	9.27	9.28	9.66	9.42	8.40	9.22	9.33
1981	10.29	10.31	10.74	10.41	9.35	10.06	10.34
1982	11.20	11.23	11.85	11.16	10.17	10.95	11.21
1983	11.79	11.82	12.58	11.61	10.73	11.59	11.84
1984	12.24	12.32	12.91	12.40	11.37	11.82	12.01
1985	12.54	12.62	13.18	12.85	11.66	12.14	12.36
1986	12.75	12.86	13.48	13.08	11.90	12.20	12.48
1987	13.10	13.17	13.74	13.33	12.23	12.73	13.09
1988	13.48	13.55	14.18	13.80	12.28	13.13	13.53
1989	14.10	14.17	14.89	14.42	12.81	13.70	14.20
1990	14.73	14.79	15.66	14.84	13.37	14.39	14.82
1991	15.51	15.60	16.72	15.38	14.05	14.90	15.21
1992	16.46	16.53	17.70	16.28	14.89	15.99	16.45
1993	17.18 ^r	17.23 ^r	18.43	16.70	15.72 ^r	16.80	17.43
1994	17.90	17.96	19.50	17.31	16.03	17.48	18.39

AVERAGE HOURLY EARNINGS INCLUDING LUMP-SUM WAGE PAYMENTS^c

1984	\$12.37	\$12.46	\$13.11	\$12.40	\$11.37	\$11.92	\$12.14
1985	12.69	12.77	13.40	12.85	11.66	12.29	12.56
1986	12.94	13.06	13.80	13.08	11.90	12.33	12.66
1987	13.37	13.48	14.32	13.33	12.23	12.80	13.19
1988	13.73	13.79	14.65	13.80	12.28	13.36	13.87
1989	14.37	14.44	15.41	14.42	12.81	13.98	14.63
1990	15.04	15.10	16.32	14.84	13.37	14.67	15.26
1991	15.71	15.81	17.16	15.38	14.05	15.09	15.49
1992	16.67	16.75	18.18	16.28	14.89	16.05	16.54
1993	17.44	17.52 ^r	19.00	16.70	15.72 ^r	16.83	17.47
1994	17.97	18.03	19.57	17.31	16.03	17.53	18.37

Source: Bureau of Labor Statistics, "Employment and Earnings" (Monthly) and Aerospace Industries Association estimates.

a TOTAL columns are employment-based weighted averages.

b Includes overtime premiums.

c Many aerospace manufacturers have included lump-sum payments in labor settlements since late 1983 in lieu of general wage increases and/or cost of living adjustments. These payments are reported by BLS in separate wage series for SICs 3721 & 3761 and are included by AIA in totals.

r Revised.

AEROSPACE FACTS AND FIGURES 1995/1996

AVERAGE WEEKLY EARNINGS IN THE AEROSPACE INDUSTRY

**Production Workers Only
Calendar Years 1979-1994**

Year	TOTAL ^a	Aircraft (SIC 372)				Guided Missiles, Space Vehicles & Parts (SIC 376)	Complete Guided Missiles, & Space Vehicles (SIC 3761)
		TOTAL ^a	Airframes (SIC 3721)	Engines & Parts (SIC 3724)	Other Parts & Equipment (SIC 3728)		

AVERAGE WEEKLY EARNINGS^b

1979	\$351	\$351	\$360	\$361	\$322	\$347	\$348
1980	389	390	404	394	358	378	383
1981	424	426	444	422	396	410	420
1982	460	462	485	454	426	447	461
1983	486	487	513	476	453	480	494
1984	513	516	532	523	486	496	508
1985	531	534	547	542	506	515	527
1986	545	550	568	561	520	517	533
1987	556	558	578	567	523	541	556
1988	573	575	596	582	529	567	585
1989	593	594	616	616	542	589	611
1990	624	626	656	637	570	612	634
1991	648	651	694	654	583	632	649
1992	685	689	736	689	615	652	666
1993	714 ^r	717	756	715	657 ^r	696	727
1994	754	756	798	753	689	738	779

AVERAGE WEEKLY EARNINGS INCLUDING LUMP-SUM PAYMENTS^c

1984	\$515	\$518	\$540	\$523	\$486	\$501	\$514
1985	532	535	556	542	506	521	535
1986	548	553	581	561	520	523	541
1987	563	567	603	567	523	544	561
1988	583	584	615	582	529	577	599
1989	605	605	638	616	542	601	629
1990	637	639	684	637	570	624	653
1991	657	659	712	654	583	640	661
1992	693	698	756	689	615	655	670
1993	725	729	779	715	657 ^r	697	728
1994	755	757	800	753	689	740	783

Source: Bureau of Labor Statistics, "Employment and Earnings" (Monthly) and Aerospace Industries Association estimates.

^a TOTAL columns are employment-based weighted averages.

^b Includes overtime premiums.

^c Many aerospace manufacturers have included lump-sum payments in labor settlements since late 1983 in lieu of general wage increases and/or cost of living adjustments. These payments are reported by BLS in separate wage series for SICs 3721 & 3761 and are included by AIA in totals.

^r Revised.

EMPLOYMENT

AVERAGE HOURS IN THE AEROSPACE INDUSTRY

Production Workers Only
Calendar Years 1980-1994

Year	TOTAL ^a	Aircraft (SIC 372)				Guided Missiles, Space Vehicles & Parts (SIC 376)	Complete Guided Missiles, & Space Vehicles (SIC 3761)
		TOTAL ^a	Airframes (SIC 3721)	Engines & Parts (SIC 3724)	Other Parts & Equipment (SIC 3728)		
AVERAGE WEEKLY HOURS							
1980	41.9	42.0	41.8	41.8	42.6	41.0	41.1
1981	41.3	41.3	41.3	40.5	42.4	40.8	40.6
1982	41.1	41.1	40.9	40.7	41.9	40.8	41.1
1983	41.2	41.2	40.8	41.0	42.2	41.4	41.7
1984	41.9	41.9	41.2	42.2	42.7	42.0	42.3
1985	42.3	42.3	41.5	42.2	43.4	42.4	42.6
1986	42.7	42.8	42.1	42.9	43.7	42.4	42.7
1987	42.4	42.4	42.1	42.5	42.8	42.5	42.5
1988	42.5	42.4	42.0	42.2	43.1	43.2	43.2
1989	42.1	41.9	41.4	42.7	42.3	43.0	43.0
1990	42.3	42.3	41.9	42.9	42.6	42.5	42.8
1991	41.8	41.7	41.5	42.5	41.5	42.4	42.7
1992	41.6	41.7	41.6	42.3	41.3	40.8	40.5
1993	41.6	41.6	41.0	42.8	41.8	41.4	41.7
1994	42.1	42.1	40.9	43.5	43.0	42.2	42.6
AVERAGE WEEKLY OVERTIME HOURS							
1980	4.1	4.2	3.5	5.0	5.0	3.6	3.2
1981	3.5	3.5	3.1	3.5	4.4	3.2	2.9
1982	3.2	3.2	2.7	3.6	3.7	3.1	3.1
1983	3.1	3.1	2.5	3.7	3.7	3.3	3.5
1984	3.9	4.0	3.0	5.1	4.6	3.3	3.4
1985	4.6	4.6	3.5	5.4	5.3	4.6	5.0
1986	4.8	4.9	4.2	5.5	5.5	4.4	4.7
1987	4.8	4.9	4.4	5.0	5.4	4.2	4.3
1988	4.6	4.6	4.3	4.6	5.1	4.5	4.6
1989	5.0	5.1	5.0	5.4	5.0	4.4	4.5
1990	4.5	4.6	4.3	5.3	4.5	3.8	4.1
1991	4.0	4.0	4.1	4.5	3.5	3.9	4.5
1992	3.6	3.7	3.6	4.4	3.3	2.8	3.1
1993	3.8	3.9	3.7	4.6	3.7	2.9	3.2
1994	4.5	4.6	4.1	5.3	4.8	3.7	3.8

Source: Bureau of Labor Statistics, "Employment and Earnings" (Monthly) and Aerospace Industries Association estimates.

^a TOTAL columns are employment-based weighted averages.

AEROSPACE FACTS AND FIGURES 1995/1996

**EMPLOYMENT IN NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION PROGRAMS**

End of Fiscal Years 1961–1996

Year	TOTAL	NASA Employees	Contractor Employees ^a
1961	74,577	17,077	57,500
1962	137,656	22,156	115,500
1963	246,304	27,904	218,400
1964	379,084	31,984	347,100
1965	409,900	33,200	376,700
1966	393,924	33,924	360,000
1967	306,926	33,726	273,200
1968	267,871	32,471	235,400
1969	218,345	31,745	186,600
1970	160,850	31,350	129,500
1971	143,578	29,478	114,100
1972	138,800	27,500	111,300
1973	134,850	26,850	108,000
1974	125,220	25,020	100,200
1975	127,733	24,333	103,400
1976	130,739	24,039	108,000
1977	124,136	23,636	100,500
1978	124,637	23,237	101,400
1979	131,931	22,831	109,100
1980	135,613	22,613	113,000
1981	133,473	21,873	111,600
1982	128,730	22,430	106,300
1983	129,246	22,246	107,000
1984	162,080	22,080	140,000
1985	131,991	21,991	110,000
1986	154,660	21,660	133,000
1987	165,001	22,001	143,000
1988	172,326	22,326	150,000
1989	213,054	23,054	190,000
1990	221,829	23,829	198,000
1991	223,149	24,149	199,000
1992	230,513	24,513	206,000
1993	228,674	24,174	204,500
1994	217,910	23,873	194,037
1995 ^E	210,075	23,075	187,000
1996 ^E	200,000	23,000	177,000

Source: Office of Management and Budget, "Budget of the United States Government" (Annually) and NASA Headquarters.
^a Includes estimates of manpower for hardware and related contracts, as well as actual work-years for support service contracts. Increase in FY 1984 caused by change in estimating methodology to reflect more accurately the mix of support and development contractors.
^E Estimate.

EMPLOYMENT

**FEDERAL CIVILIAN EMPLOYMENT^a
IN THE DEPARTMENT OF DEFENSE**

Fiscal Years 1967–1996

Year	TOTAL	Civil Functions ^b	Military Functions ^c
1967	1,225,637	31,980	1,193,657
1968	1,288,130	32,062	1,256,068
1969	1,257,091	31,214	1,225,877
1970	1,159,935	30,293	1,129,642
1971	1,092,804	30,063	1,062,741
1972	1,040,147	30,585	1,009,562
1973	987,281	29,971	957,310
1974	1,002,850	29,072	973,778
1975	983,790	29,069	954,721
1976	951,034	28,648	922,386
1977	940,549	28,912	911,637
1978	933,071	28,962	904,109
1979	914,582	28,592	885,990
1980	907,700	27,700	880,000
1981	981,400	34,400	947,000
1982	1,009,192	31,111	978,081
1983	1,015,622	30,816	984,806
1984	1,040,213	28,681	1,011,532
1985	1,065,624	28,754	1,036,870
1986	1,069,863	28,511	1,041,352
1987	1,059,669	28,352	1,031,317
1988	1,053,000	28,419	1,024,581
1989	1,051,166	28,081	1,023,085
1990	1,048,814	27,651	1,021,163
1991	1,001,183	27,385	973,798
1992	1,000,453	27,584	972,869
1993	958,855	27,055	931,800
1994	896,293	28,001	868,292
1995 ^E	861,805	27,700	834,105
1996 ^E	827,980	27,400	800,580

Source: Office of Management and Budget, "The Budget of the United States Government" (Annually).

a Full-time equivalent civilian employment.

b Data are estimated for portions of Civil Functions.

c The Department of Defense is exempt from full-time equivalent controls. Data shown are estimated civilian employment for military functions and military assistance.

E Estimate.

AEROSPACE FACTS AND FIGURES 1995/1996

OCCUPATIONAL INJURY AND ILLNESS INCIDENCE RATES^a
ALL MANUFACTURING AND AEROSPACE INDUSTRIES
Calendar Years 1989–1993

	1989	1990	1991	1992	1993
All Manufacturing:					
Total Cases	13.1	13.2	12.7	12.5	12.1
Lost Workday Cases	5.8	5.8	5.6	5.4	5.3
Nonfatal Cases without Lost Workdays .	7.3	7.3	7.1	7.1	6.8
Lost Workdays	113.0	120.7	121.5	124.6	NA
Aircraft and Parts (SIC 372):					
Total Cases	10.1	10.4	10.9	11.1	10.3
Lost Workday Cases	3.7	4.0	4.3	4.5	4.1
Nonfatal Cases without Lost Workdays .	6.4	6.4	6.6	6.6	6.2
Lost Workdays	70.2	90.3	114.4	125.4	NA
Aircraft (SIC 3721):					
Total Cases	10.2	10.0	10.2	10.7	10.2
Lost Workday Cases	3.5	3.9	4.2	4.4	4.0
Nonfatal Cases without Lost Workdays .	6.7	6.1	6.0	6.3	6.2
Lost Workdays	70.5	95.3	128.2	141.8	NA
Aircraft Engines and Parts (SIC 3724):					
Total Cases	7.9	9.3	10.0	9.7	9.7
Lost Workday Cases	3.7	4.2	4.3	3.9	4.1
Nonfatal Cases without Lost Workdays .	4.2	5.1	5.7	5.7	5.6
Lost Workdays	72.5	89.5	91.3	85.1	NA
Aircraft Parts (SIC 3728):					
Total Cases	12.0	11.9	12.9	13.1	11.1
Lost Workday Cases	4.1	3.9	4.4	5.0	4.3
Nonfatal Cases without Lost Workdays .	7.8	8.0	8.5	8.1	6.7
Lost Workdays	67.7	80.5	105.3	122.3	NA
Guided Missiles, Space Vehicles & Parts (SIC 376):					
Total Cases	4.8	4.0	4.3	4.0	4.5
Lost Workday Cases	2.2	1.9	2.1	1.8	1.9
Nonfatal Cases without Lost Workdays .	2.6	2.1	2.2	2.3	2.6
Lost Workdays	39.7	39.5	51.0	50.3	NA
Guided Missiles & Space Vehicles (SIC 3761):					
Total Cases	4.6	4.0	4.3	4.0	4.6
Lost Workday Cases	2.2	1.9	2.2	1.9	1.9
Nonfatal Cases without Lost Workdays .	2.5	2.1	2.1	2.1	2.7
Lost Workdays	41.4	37.3	54.2	53.0	NA
Space Propulsion Units & Parts (SIC 3764):					
Total Cases	4.6	4.4	4.5	3.6	NA
Lost Workday Cases	2.1	2.2	2.0	1.5	NA
Nonfatal Cases without Lost Workdays .	2.5	2.2	2.5	2.2	NA
Lost Workdays	33.5	48.7	44.1	42.5	NA
Other Space Vehicle Equipment (SIC 3769):					
Total Cases	5.6	3.8	3.9	5.1	4.8
Lost Workday Cases	2.3	1.6	1.6	1.8	1.8
Nonfatal Cases without Lost Workdays .	3.3	2.3	2.3	3.3	3.0
Lost Workdays	41.5	38.4	40.8	47.1	NA

Source: Bureau of Labor Statistics, "Occupational Injuries and Illnesses in the United States by Industry" (Annually).

a Defined as the number of injuries and illnesses per 100 full-time workers. Separate incidence rates also available for occupational injuries only.

NA Not available.

EMPLOYMENT

AEROSPACE INDUSTRY WORK STOPPAGES^a

Calendar Years 1979–1994

Year	Number of Strikes ^b	Number of Workers Involved	Work-Days Idle in Year
1979	12	6,600	103,400
1980	17	4,400	92,900
1981	12	6,100	188,900
1982 ^c	4	11,900	45,200
1983	2	8,700	404,100
1984	4	14,600	188,200
1985	4	19,700	289,800
1986	—	—	—
1987	—	—	—
1988	3	10,600	415,800
1989	2	58,500	1,848,000
1990	1	2,300	56,700
1991	1	1,500	—
1992	1	3,800	11,400
1993	2	27,800	34,600
1994	—	—	—

Source: Bureau of Labor Statistics, "Compensation and Working Conditions" (Monthly).

a Based on SIC 372 of the 1967 Code, which includes missile and space propulsion units and parts and missile and space vehicle equipment not elsewhere classified, but which excludes complete guided missiles and space vehicles.

b Strikes beginning during calendar year.

c Effective 1982, data not available for work stoppages involving fewer than 1,000 employees.

Finance

In 1994, the aerospace industry reported net income after taxes of \$5.7 billion, up from \$4.6 billion in the previous year. Technically speaking, 1994 earnings represented an all-time high, but the record was tarnished by the fact that much of the profit stemmed from the effects of downsizing occasioned by business decline.

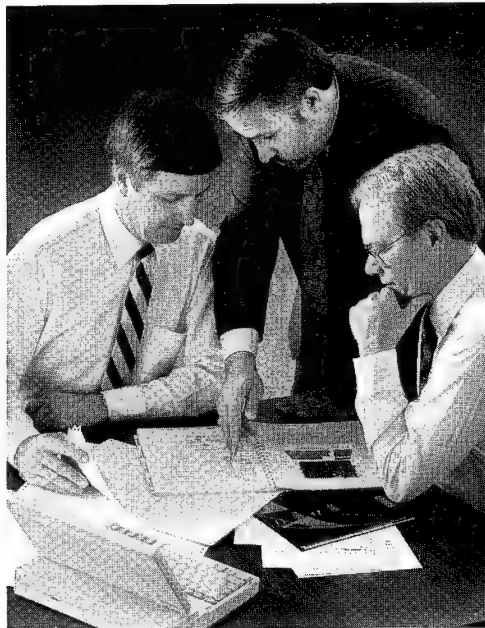
Payroll costs, for example, were sharply lower as the industry was forced to reduce further its employment level; investment in research and development was lower because defense restructuring has reduced the opportunities for innovations leading to production contracts; and fewer production contracts caused reduction of expenditures for plant and equipment. The 1994 profit figure also reflects income from sales of assets.

Expressed as a percentage of sales, the industry's profit amounted to 4.7 percent, compared with the average for all U.S. manufacturing industries of 5.4 percent. As a percentage of assets, the aerospace figure was 4.3 percent, the all-industry average 5.8 percent. As a percentage of equity, aerospace earnings amounted to 14.8 percent, which compared with 15.6 percent for all U.S. manufacturing.

The aerospace balance sheet for 1994, as reported by the Bureau

of the Census, showed an increase in net working capital from \$14.2 billion in 1993 to \$15.7 billion in 1994. Total assets declined to \$132.3 billion from the previous year's \$132.7 billion.

McDonnell Douglas Corporation once again headed the list of Department of Defense contractors in terms of contract dollar value in Fiscal Year (FY) 1994; the company received awards totaling \$9.3 billion, which compares with \$7.5 billion in FY 1993. Lockheed Corporation and Martin Marietta Corporation were reported separately in 1994 (prior to their merger) and placed second and



fourth, respectively. Lockheed had defense awards totaling \$6.5 billion. In third place was Northrop Grumman Corporation (\$5.2 billion), followed by Martin Marietta (\$3.1 billion) and General Motors Corporation (\$3 billion).

Rounding out the top 10 defense contractors were General Dynamics Corporation (\$2.8 billion), Raytheon Company (\$2.7 billion), General Electric Company (\$2.7 billion), United Technologies Corporation (\$2.7 billion), and Loral Corporation (\$1.7 billion).

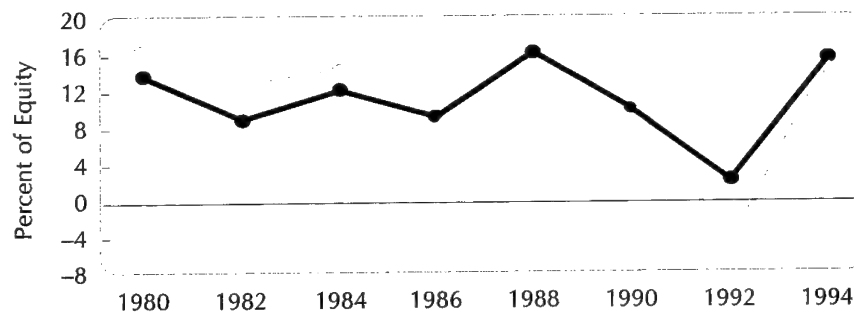
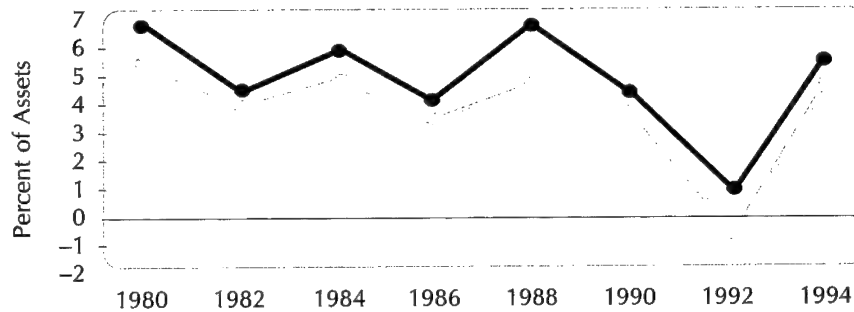
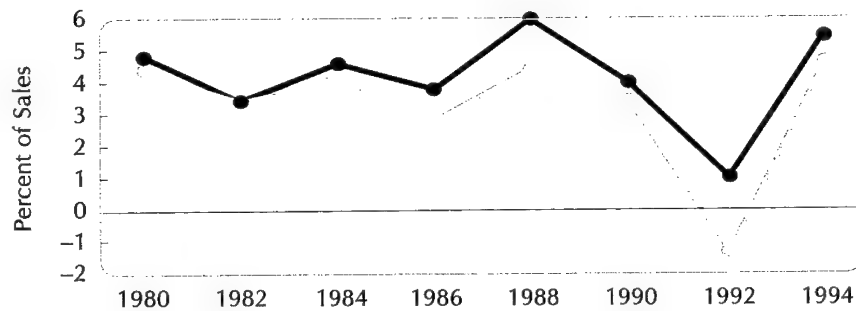
The Boeing Company edged out perennial leader Rockwell International Corporation to top the list

of National Aeronautics and Space Administration (NASA) contractors in FY 1994. Both had contract values of approximately \$1.1 billion. Lockheed Space Operations Company placed third with \$572 million, followed by McDonnell Douglas (\$565 million) and Martin Marietta (\$498 million).

The rest of NASA's top 10 included Thiokol Corporation (\$431 million), Rockwell Space Operations Inc. (\$338 million), Computer Sciences Corporation (\$255 million), AlliedSignal Technical Services (\$247 million), and TRW Inc. (\$235 million).



Net Profit After Taxes



ALL MANUFACTURING

AEROSPACE INDUSTRY

SOURCE: AEROSPACE INDUSTRIES ASSOCIATION

FINANCE

**NET PROFIT AFTER TAXES
AS A PERCENT OF SALES, ASSETS, AND EQUITY
FOR ALL MANUFACTURING CORPORATIONS
AND THE AEROSPACE INDUSTRY**
Calendar Years 1980–1994

PERCENT OF SALES

Year	All Manufacturing Corporations	Non- Durable Goods	Durable Goods	Aerospace ^a Industry
1980	4.8%	5.6%	4.0%	4.3%
1981	4.7	5.1	4.3	4.4
1982	3.5	4.6	2.4	3.3
1983	4.1	4.9	3.1	3.5
1984	4.6	4.8	4.4	4.1
1985	3.8	4.1	3.4	3.1
1986	3.7	4.6	2.9	2.8
1987	4.9	5.2	4.5	4.1
1988	6.0	6.7	5.2	4.3
1989	5.0	5.8	4.1	3.3
1990	4.0	4.9	3.0	3.4
1991	2.5	4.2	0.6	1.8 ^b
1992	1.0	3.2	(1.4)	(1.4) ^b
1993	2.8	3.7	1.9	3.6
1994	5.4	5.5	5.2	4.7

Year	Percent of Assets ^c		Percent of Equity ^c	
	All Manufacturing	Aerospace ^a Industry	All Manufacturing	Aerospace ^a Industry
1980	6.9%	5.2%	13.9%	16.0%
1981	6.7	5.2	13.6	16.0
1982	4.5	3.7	9.2	12.0
1983	5.1	4.1	10.5	12.1
1984	6.0	4.7	12.5	14.1
1985	4.6	3.6	10.1	11.1
1986	4.2	3.1	9.5	9.4
1987	5.6	4.4	12.8	14.6
1988	6.9	4.4	16.2	14.9
1989	5.6	3.3	13.7	10.7
1990	4.3	3.4	10.7	11.5
1991	2.6	1.9 ^b	6.4	6.1 ^b
1992	1.0	(1.2) ^b	2.6	(5.2) ^b
1993	2.9	3.5	8.1	13.2
1994	5.8	4.3	15.6	14.8

Source: Bureau of the Census, "Quarterly Financial Report for Manufacturing, Mining, and Trade Corporations" (Quarterly).

a Based on a sample of corporate entities classified in SIC codes 372 and 376, having as their principal activity the manufacture of aircraft, guided missiles, space vehicles, their propulsion, and parts.

b Reflects unusually large non-operating expenses totalling \$3.4 and \$8.7 billion in 1991 and 1992, respectively, due to restructuring changes and the implementation of a change in accounting for future retirement benefit costs.

c Average of four quarters

() Net loss after taxes.

INCOME STATEMENT AND OPERATING RATIOS FOR AEROSPACE COMPANIES^a

Calendar Years 1991-1994
(Millions of Dollars)

INCOME STATEMENT	1991	1992	1993	1994
Net Sales, Receipts, Operating Revenues	\$135,175	\$134,420	\$128,651	\$120,521
Less: Depreciation, Depletion, & Amortization of Property, Plant, and Equipment	4,353	4,443	4,474	4,500
Less: All Other Operating Costs & Expenses, Including Selling Costs & General & Administrative Expenses	123,208	123,075	117,162	108,306
Income (or Loss) from Operations	\$ 7,614	\$ 6,900	\$ 7,015	\$ 7,714
Net Non-Operating Income (Expense)	(3,432)	(8,666)	(307)	372
Income (or Loss) before Income Taxes (= Total Income)	\$ 4,181	\$ (1,766)	\$ 6,708	\$ 8,086
Less: Provision for Current & Deferred Domestic Income Taxes	1,698	71	2,086	2,432
Income (or Loss) after Income Taxes (= Net Profit)	\$ 2,484	\$ (1,836)	\$ 4,621	\$ 5,655
Cash Dividends Charged to Retained Earnings	1,678	1,610	3,279	1,831
Net Income Retained in Business	\$ 806	\$ (3,449)	\$ 1,342	\$ 3,823
Retained Earnings at Beginning of Year ^b	30,694	30,647	25,358	25,655
Adjustments to Retained Earnings ^c	(707)	(1,673)	(754)	(9)
Retained Earnings at End of Year^d	\$ 30,793	\$ 25,528	\$ 25,946	\$ 29,470
OPERATING RATIOS				
Income before Taxes as Percent of Net Sales	3.1%	(1.3)%	5.2%	6.7%
Provision for Current & Deferred Domestic Income Taxes as Percent of Income before Taxes (Total Income)	40.6	(4.0) ^r	31.1	30.1
Income after Taxes (Net Profit) as Percent of Net Sales	1.8	(1.4)	3.6	4.7
Income after Taxes (Net Profit) as Percent of Stockholders' Equity ^e	6.1	(5.2)	13.2	14.8
Income after Taxes (Net Profit) as Percent of Total Assets ^e	1.9	(1.2)	3.5	4.3

Source: Bureau of the Census, "Quarterly Financial Report for Manufacturing, Mining, and Trade Corporations" (Quarterly).
NOTE: Detail may not add to totals because of rounding.

a Based on sample of corporate entities classified in SIC codes 372 and 376, having as their principal activity the manufacture of aircraft, guided missiles, space vehicles, their propulsion, and parts.

b Beginning-of-year retained earnings for any particular year do not equal end-of-year retained earnings for the previous year because of rotation of small companies in survey sample.

c Other direct credits (or charges) to retained earnings (net), including stock and other non-cash dividends, etc.

d Retained Earnings at End of Year CALCULATED AS Retained Earnings at Beginning of Year PLUS Income (Loss) after Income Taxes MINUS Cash Dividends Charged to Retained Earnings PLUS Adjustments to Retained Earnings.

e Average of four quarters.

r Revised.

FINANCE

BALANCE SHEET FOR AEROSPACE COMPANIES^a

December 31, 1991-1994
(Millions of Dollars)

	1991	1992	1993	1994
Assets:				
Current Assets:				
Cash	\$ 2,950	\$ 3,963	\$ 3,544	\$ 2,766
Securities, Commercial Paper, & Other				
Short-term Financial Investments	3,468	3,269	3,316	3,576
Total Cash and U.S. Government				
and Other Securities	\$ 6,418	\$ 7,233	\$ 6,860	\$ 6,341
Receivables (Total)	17,812	15,762	15,991	16,809
Inventories (Gross)	49,973	44,010	42,276	39,123
Other Current Assets	2,166	3,930	4,396	4,341
Total Current Assets	\$ 76,370	\$ 70,934	\$ 69,524	\$ 66,615
Net Plant, Property, & Equipment	26,557	27,483	27,698	26,406
Other Non-Current Assets	28,012	29,354	35,526	39,245
Total Assets	\$130,939	\$127,770	\$132,747	\$132,266
Liabilities:				
Current Liabilities:				
Short Term Loans	\$ 1,943	\$ 1,735	\$ 2,031	\$ 1,787
Trade Accounts & Notes Payable	12,188	11,290	11,491	10,871
Income Taxes Accrued	1,151	1,288	1,882	1,929
Installments Due on Long Term Debts ..	1,767	2,264	1,260	1,137
Other Current Liabilities	44,823	39,175	38,697	35,159
Total Current Liabilities	\$ 61,871	\$ 55,752	\$ 55,360	\$ 50,882
Long Term Debt	20,682	19,241	20,452	19,832
Other Non-Current Liabilities	8,123	18,318	20,505	21,270
Total Liabilities	\$ 90,676	\$ 93,310	\$ 96,316	\$ 91,984
Stockholders' Equity:				
Capital Stock	\$ 9,681	\$ 8,037	\$ 10,346	\$ 9,706
Retained Earnings	30,581	26,424	26,086	30,557
Total Stockholders' Equity	\$ 40,262	\$ 34,460	\$ 36,431	\$ 40,282
Total Liabilities & Stockholders' Equity	\$130,939	\$127,770	\$132,747	\$132,266
Net Working Capital	\$ 14,499	\$ 15,183	\$ 14,164	\$ 15,733

Source: Bureau of the Census, "Quarterly Financial Report for Manufacturing, Mining, and Trade Corporations" (Quarterly).
NOTE: Detail may not add to totals because of rounding.

a Based on sample of corporate entities classified in SIC codes 372 and 376, having as their principal activity the manufacture of aircraft, guided missiles, space vehicles, their propulsion, and parts.

AEROSPACE FACTS AND FIGURES 1995/1996

NEW PLANT AND EQUIPMENT EXPENDITURES

Calendar Years 1965–1994
(Billions of Dollars)

Year	All Industries	All Manufacturing Industries	Durable Goods	Aerospace ^a	
				Current Dollars	Constant Dollars ^b
1965	\$ 59.52	\$ 25.41	\$13.49	\$0.53	\$1.57
1966	70.40	31.37	17.23	1.17	3.38
1967	72.75	32.25	17.83	1.25	3.49
1968	76.42	32.34	17.93	1.23	3.32
1969	85.74	36.27	19.97	1.29	3.37
1970	91.91	36.99	19.80	0.88	2.19
1971	92.91	33.60	16.78	0.63	1.51
1972	103.40	35.42	18.22	0.68	1.59
1973	120.03	42.35	22.63	0.79	1.79
1974	139.67	52.48	26.77	1.21	2.40
1975	142.42	53.66	25.37	1.19	2.04
1976	158.44	58.53	27.50	1.02	1.64
1977	184.82	67.48	32.77	1.14	1.72
1978	216.81	78.13	39.02	1.77	2.48
1979	255.26	95.13	47.72	2.71	3.50
1980	286.40	112.60	54.82	3.60	4.20
1981	324.73	126.68	58.93	3.40	3.59
1982	326.19	123.97	54.58	3.45	3.45
1983	321.16	117.35	51.61	2.95	2.87
1984	373.83	139.61	64.57	3.63	3.45
1985	410.12	152.88	70.87	3.51	3.27
1986	399.36	137.95	65.68	3.86	3.52
1987	410.52	141.06	68.03	3.60	3.22
1988	455.49	163.45	77.04	3.49	3.05
1989	507.40	183.80	82.56	4.17	3.51
1990	532.61	192.61	82.58	4.02	3.27
1991	528.39	182.81	77.64	4.05	3.20
1992	546.60	174.02	73.32	4.36	3.38
1993 ^r	586.73	179.47	81.45	3.22	2.45
1994 ^E	638.37	192.56	92.78	2.95	2.20

Source: Bureau of the Census, "Plant and Equipment Expenditures and Plans" (Quarterly).

a Data are company-based (not establishment nor product-based) and represent corporate entities whose principal activity falls in SIC codes 372 and 376.

b Based on the Producer Price Index, Capital Equipment (1982=100).

E Estimate.

r Revised.

FINANCE

**DEPARTMENT OF DEFENSE
PRIME CONTRACT AWARDS OVER \$25,000
FOR SELECTED MAJOR MILITARY HARD GOODS**

By Geographic Region
Fiscal Years 1992, 1993, and 1994

Program and Region	Millions of Dollars			Percent of Program Total		
	1992	1993	1994	1992	1993	1994
AIRCRAFT—TOTAL	\$26,440	\$26,183	\$27,449	100.0%	100.0%	100.0%
New England	2,981	2,717	2,127	11.3	10.4	7.8
Middle Atlantic	2,859	1,808	1,713	10.8	6.9	6.2
East North Central	1,538	1,533	1,542	5.8	5.9	5.6
West North Central	2,811	4,728	5,246	10.6	18.1	19.1
South Atlantic	4,394	4,972	5,274	16.6	19.0	19.2
East South Central	407	355	350	1.5	1.4	1.3
West South Central	3,205	3,595	2,995	12.1	13.7	10.9
Mountain	474	830	524	1.8	3.2	1.9
Pacific ^a	7,772	5,645	7,678	29.4	21.6	28.0
MISSILE & SPACE SYSTEMS—TOTAL	\$14,468	\$14,460	\$13,015	100.0%	100.0%	100.0%
New England	1,715	2,168	1,743	11.9	15.0	13.4
Middle Atlantic	1,088	766	714	7.5	5.3	5.5
East North Central	81	85	101	0.6	0.6	0.8
West North Central	445	592	438	3.1	4.1	3.4
South Atlantic	1,370	1,244	1,345	9.5	8.6	10.3
East South Central	848	753	602	5.9	5.2	4.6
West South Central	1,268	1,062	1,237	8.8	7.3	9.5
Mountain	2,241	2,608	2,337	15.5	18.0	18.0
Pacific ^a	5,411	5,181	4,498	37.4	35.8	34.6
ELECTRONICS & COMMUNICATIONS EQUIPMENT—TOTAL ...	\$15,777	\$16,467	\$14,230	100.0%	100.0%	100.0%
New England	1,435	1,304	1,139	9.1	7.9	8.0
Middle Atlantic	2,707	2,559	2,001	17.2	15.5	14.1
East North Central	1,143	1,409	1,220	7.2	8.6	8.6
West North Central	874	797	580	5.5	4.8	4.1
South Atlantic	4,061	4,682	4,613	25.7	28.4	32.4
East South Central	175	420	437	1.1	2.6	3.1
West South Central	848	887	712	5.4	5.4	5.0
Mountain	565	624	667	3.6	3.8	4.7
Pacific ^b	3,969	3,784	2,861	25.2	23.0	20.1

Source: Department of Defense, "Prime Contract Awards by Region and State" (Annually).

NOTE: Detail may not add to totals because of rounding.

^a Includes Alaska and Hawaii.

AEROSPACE FACTS AND FIGURES 1995/1996

DEPARTMENT OF DEFENSE MAJOR CONTRACTORS

Fiscal Years 1990-1994
Listed by rank according to net value of
prime contracts awarded during last fiscal year
(Millions of Dollars)

Company	1990	1991	1992	1993	1994
TOTAL CONTRACTS	\$130,758	\$136,640	\$121,438	\$123,713	\$118,114
McDonnell Douglas Corp.	\$ 8,211	\$ 8,057	\$ 5,311	\$ 7,540	\$ 9,266
Lockheed Corp.	3,553	2,667	4,650	6,911	6,518
Northrop Grumman Corp. ^b	3,443	5,682	7,034	4,709	5,202
Martin Marietta Corp.	3,492	2,689	2,356	4,727	3,134
General Motors Corp.	4,107	4,427	3,694	4,076	3,041
General Dynamics Corp.	6,306	7,848	4,464	2,147	2,801
Raytheon Co.	4,071	4,090	2,841	3,233	2,738
General Electric Co.	5,589	4,866	4,008	1,606	2,705
United Technologies Corp.	2,856	2,825	2,803	3,083	2,677
Loral Corp.	618	1,283	1,815	1,729	1,681
Litton Industries Inc.	1,576	1,601	2,334	1,555	1,576
Westinghouse Electric Corp. ...	2,243	1,812	1,147	1,569	1,357
Textron Inc.	1,190	997	1,161	955	1,236
The Boeing Co.	2,267	1,166	2,495	1,664	1,195
Rockwell International Corp. ...	2,217	1,708	1,233	1,317	1,062
Avondale Industries	541	344	173	587	902
Science Application Int'l Corp. .	510	513	686	786	868
TRW Inc.	1,087	1,092	1,013	1,160	848
Bath Holding Corp.	734	872	1,148	997	798 ^c
GTE Corp.	1,294	801	724	714	788
E-Systems Inc.	460	603	501	754	769
Texas Instruments Inc.	704	982	731	968	690
Unisys Corp.	1,376	1,379	834	717	640
ITT Corp.	870	948	797	614	609
Computer Sciences Corp.	319	406	495	422	589
FMC Corporation	634	1,467	448	508	582
IBM Corp.	1,286	773	932	849	562
AT&T Co.	769	699	1,338	870	538
Exxon Corp.	438	549	306	419	530
BDM	156	168	209	312	528 ^d

Source: Department of Defense, "100 Companies Receiving the Largest Dollar Volume of Prime Contract Awards" (Annually).

a Not in top 100 companies for indicated year(s).

b Includes awards previously reported as Grumman Corporation.

c Listed as Fulcrum II Limited Partnerships.

d Listed as Carlyle Partners Leveraged Corporation.

FINANCE

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION MAJOR CONTRACTORS

Fiscal Years 1991-1994
By rank according to net value of NASA prime
contracts awarded during last fiscal year
(Millions of Dollars)

Company	1991	1992	1993	1994
TOTAL PROCUREMENTS	\$13,159	\$13,478	\$13,160	\$12,913
Awards to Business Firms	10,417	10,717	10,498	9,966
% of TOTAL PROCUREMENTS	79 %	79 %	80 %	77 %
The Boeing Co.	\$ 468	\$ 500	\$ 502	\$ 1,142
Rockwell International Corp.	1,560	1,449	1,491	1,069
Lockheed Space Operations Co. ...	591	599	590	572
McDonnell Douglas Corp.	1,089	1,045	997	565
Martin Marietta Corp. ^b	880	744	611	498
Thiokol Corp.	438	510	479	431
Rockwell Space Operations Inc. ...	343	346	351	338
Computer Sciences Corp.	207	232	195	255
AlliedSignal Technical Services	(a)	(a)	231	247
TRW Inc.	192	194	218	235
Lockheed Missiles & Space Co. ...	458	530	430	222
Lockheed Engrg. & Science Co. ...	259	270	256	216
EG&G Florida Inc.	227	213	221	200
USBI Booster Production Co.	198	207	177	156
Loral Aerospace Corp.	186	141	137	119
United Technologies Corp.	133	136	97	119
Grumman Aerospace Corp.	100	103	163	111
Space Systems Loral, Inc.	(a)	95	77	91
Boeing Computer Support Services .	159	140	155	84
Santa Barbara Research Center	13	32	48	82
General Dynamics Corp.	19	49	23	78
Johnson Controls World Serv. Inc. .	70	76	67	70
Sverdrup Technology Inc.	97	109	107	66
IBM Corp.	68	76	55	64
Teledyne Industries Inc.	65	54	56	63
BAMSI Inc.	52	59	57	58
Spacehab Inc.	8	38	50	56
Hughes STX Corp.	(a)	(a)	35	54
Sterling Federal Systems Inc.	34	44	58	52
Hughes Applied Info Systems	(a)	(a)	58	51

Source: National Aeronautics and Space Administration, "Annual Procurement Report" (Annually).

a Not in list of major contractors for indicated year(s).

b Includes awards previously reported as General Electric Co.

Glossary

Aeronautics: the science that treats of the operation of aircraft, also, the art or science of operating aircraft.

Aerospace Employment: annual average calculated as one-twelfth of the sum of monthly estimates of total number of persons employed during a designated pay period by the aircraft, missile, and space industries (SICs 372 and 376) plus estimated aerospace-related employment in the communications equipment (SIC 3662), instruments (SICs 381 and 382), and in certain other industries (SICs 28, 35, 73, 89, etc.)

Aerospace Industry: the industry engaged in research, development, and manufacture of aerospace systems including: manned and unmanned aircraft; missiles; spacecraft; space launch vehicles; propulsion, guidance, and control units for all of the foregoing; and a variety of airborne and ground-based equipment essential to the test, operation, and maintenance of flight vehicles.

Aerospace Payroll: estimated on the basis of average weekly *earnings* for a given calendar year for *production workers* plus an estimated annual salary for other employees.

Aerospace Sales: the AIA estimate of aerospace industry sales, developed by summing: DoD expenditures for aircraft, missiles, and space-related *procurement* and *RDT&E*; NASA expenditures for *research and development* and space flight control and data communications; *outlays* for space activities by other U.S. government departments and agencies; commercial sales of space-related products; net domestic and export sales of civil aircraft, engines, and parts; *For-*

eign Military Sales and commercial exports of military aircraft, missiles, propulsion, and related parts; sales of *related products and services* including: electronics, software, and ground support equipment; and sales of *non-aerospace products* which are produced in aerospace-manufacturing *establishments* and which use technology, processes, and materials derived from the *aerospace industry*.

AIA: Aerospace Industries Association of America, Inc., formerly Aircraft Industries Association.

Air Carriers: the commercial system of air transportation, consisting of domestic and international scheduled and charter service.

Aircraft: all airborne vehicles supported either by buoyancy or by dynamic action. Used in this volume in a restricted sense to mean an airplane—any winged aircraft including helicopters, but excluding gliders and guided missiles.

Aircraft Agreement (Agreement on Trade in Civil Aircraft): negotiated the Tokyo Round of the *Multi-lateral Trade Negotiations* and implemented January 1, 1980, providing for elimination of tariff and non-tariff trade barriers in the civil aircraft sector.

Aircraft Industry: the industry primarily engaged in the manufacture of aircraft, aircraft engines, and parts including propellers and auxiliary equipment. A sector of the *Aerospace Industry*.

Airframe: the structural components of an airplane, such as: fuselage, empennage, wings, landing gear, and engine mounts, but excluding such

items as: engines, accessories, electronics, and other parts that may be replaced from time to time.

Airlines: see *Air Carriers*.

Appropriation (Federal Budget): an act of Congress authorizing an agency to incur *obligations* and make payments out of funds held by the Department of the Treasury.

Assets, Net: the sum of all recorded assets after reducing such amount by allowance of reserve for bad debts, *depreciation*, and amortization, but before deducting any liabilities, mortgages, or other indebtedness.

Astronautics: the art and science of designing, building, and operating manned or unmanned space objects.

Average Weekly Hours: average hours for which pay was received; different from standard or scheduled hours.

Avionics: communications, navigation, flight controls, and displays.

Backlog: the sales value of orders accepted (supported by legal documents) that have not yet passed through the sales account.

Budget Authority: authority provided by the Congress; mainly in the form of *Appropriations*, which allows Federal agencies to incur *obligations* to spend or lend money.

Bureau of Economic Analysis (BEA): an agency of the Department of Commerce.

Bureau of Labor Statistics (BLS): an agency of the Department of Labor.

Bureau of the Census: an agency of the Department of Commerce.

Constant Dollars: calculated by dividing current ("then-year") dollars by appropriate price *deflator* and multiplying the result by 100.

Deflator: index used to convert a price level to one comparable with the price level at a different time, offsetting the effect of inflation. The base period, which equals 100, is usually specified as either a given fiscal or calendar year.

Depreciation: the general conversion of the depreciable cost of a fixed asset into expense, spread over its remaining life. There are a number of methods, all based on a periodic charge to an expense account and a corresponding credit to a reserve account.

Development: the process or activity of working out a basic design, idea, or piece of equipment. See also *Research and Development*.

DoD: Department of Defense.

DoE: Department of Energy.

DoT: Department of Transportation.

Durable Goods Industry: comprised of major manufacturing industry groups with SIC Codes 24, 25, and 32-39. All major manufacturing industry groups in SIC Codes 20-23 and 26-31 are considered nondurable goods manufacturing industry groups.

Earnings: the actual return to the worker for a stated period of time. Irregular bonuses, retroactive items, payments of various welfare benefits, and payroll taxes paid by employers are excluded.

Average Hourly Earnings: on a "gross" basis, reflecting not only changes in basic hourly and incentive wage rates, but also such variable factors as: premium pay for overtime, late shift work, and changes in output of workers paid for an incentive plan.

Average Weekly Earnings: derived by multiplying *average weekly hours* by *average hourly earnings*.

Establishment: the basis for reporting to the Census of Manufacturers; an operating facility in a single location.

Evaluation (Department of Defense): determination of technical suitability of material, equipment, or a system. See *RDT&E*.

Expenditures (Federal Budget): see *Outlays*.

Export-Import Bank of the United States (Eximbank): created in 1934 and established as an independent U.S. government agency in 1945, Eximbank is designed "... to aid in financing and to facilitate exports ...". Eximbank receives no *appropriations* from the U.S. Congress. It is directed by statute to: (1) offer financing that is competitive with that offered exporters of other countries by their official export credit institutions, (2) determine that the transactions supported provide for a reasonable assurance of repayment, (3) supplement, but not compete with private sources of export financing, and (4) take into account the effect of its activities on small business, the domestic economy, and U.S. employment.

Exports: domestic merchandise including commodities which are grown, produced, or manufactured in the United States and commodities of foreign origin which have been changed in the United States from the form in which they were imported or which have been enhanced in value by further manufacture in the United States and which are traded or sold to other nations.

FAA: Federal Aviation Administration (formerly the Federal Aviation Agency), an agency of the Department of Transportation.

Facility: a physical plant or installation including: real property, build-

ing, structures, improvements, and plant equipment.

Fiscal Year (Federal Budget): beginning October 1, 1976, the fiscal years run from October 1 through September 30 and are designated by the year in which they end.

Flyaway Value: includes the cost of the airframe, engines, electronics, communications, armament, and other installed equipment.

Foreign Military Sales (FMS): export sales to foreign governments arranged through the Department of Defense, whereby DoD recovers full purchase price and administrative costs; often mistakenly used to include foreign military aid and foreign commercial sales as well.

FY: see *Fiscal Year*.

GDP (Gross Domestic Product): the market value of goods and services produced by labor and property located in the United States.

General Agreement on Tariffs and Trade (GATT): a multilateral treaty among over 100 governments whose primary mission is the reduction of trade barriers. A World Trade Organization will be created by 1997 to implement the agreement and provide a forum to discuss trade issues.

General Aviation: all civil flying except that of *air carriers*.

Helicopter: a rotary-wing *aircraft* which depends principally for its support and motion in the air upon the lift generated by one or more power-driven rotors, rotating on substantially vertical axes. A helicopter is a *V/STOL*.

Heliport: an area, either at ground level or elevated on a structure, that is used for the landing and take-off of helicopters and includes some or all of the various facilities useful to helicop-

ter operations such as: helicopter parking, hangar, waiting room, fueling, and maintenance equipment.

Helistop: a minimum facility *heliport*, either at ground level or elevated on a structure for the landing and takeoff of helicopters, but without such auxiliary facilities as: waiting room, hangar parking, etc.

ICBM: InterContinental Ballistic Missile, with a range of more than 5,000 miles.

Imports: classified as "general imports" or "imports for consumption." This volume refers generally to "imports for consumption," which are entries for immediate consumption plus merchandise withdrawn from bonded storage warehouses for consumption. Data are compiled from Import Entries filed with U.S. Customs officials and are in general based on the market value or price in the foreign country at the time of exportation of such merchandise, including the cost of containers and coverings, as well as other charges and expenses incidental to placing the merchandise in condition, packed and ready for shipment to the United States, but excluding import duties, insurance, freight, and other charges incidental to arrival of the goods in the United States. The foreign values of imported merchandise are converted into U.S. currency at the rate of exchange prevailing on the day the merchandise is shipped to the United States.

Income:

Net Operating Income: total *sales* less total operating costs.

Other Income and Expenses: includes interest income, royalty income, capital gains and losses, interest expense, cash discounts, etc.

Net Income (Before Income Taxes): *Net Operating Income* plus or minus *Other Income and Expenses*.

Net Income (After Income Taxes): *Net Income (Before Income Taxes)* less federal income taxes.

Lump-Sum Wage Payment: a one-time payment given in lieu of general wage increases and/or cost of living adjustments in labor settlements.

Manufacturing Industries: those *establishments* engaged in the mechanical or chemical transformation of inorganic or organic substances into new products, and usually described as plants, factories, or mills, which characteristically use power-driven machines and materials-handling equipment; also *establishments* engaged in assembling component parts of manufactured products if the new product is neither a structure nor other fixed improvement.

Merchandise Trade Balance: the difference between the value of U.S. goods exported to other countries and foreign goods imported into this country. The trade balance is generally regarded as "favorable" when *exports* exceed *imports*—a trade surplus—and "unfavorable" when *imports* exceed *exports*—a trade deficit.

Missile: sometimes applied to space launch vehicles, but more properly connotes automated weapons of warfare, i.e., a weapon which has an integral system of guidance, as opposed to the unguided rocket.

Multilateral Trade Negotiations (MTN): a forum within the *GATT* in which countries negotiate to overcome their trade problems. Awaiting ratification by each of the 123 nations involved in the MTN, the "Uruguay Round" seeks to strengthen the *GATT* and expand its disciplines to new

areas such as: services, agriculture, and trade-related intellectual property rights.

NASA: National Aeronautics and Space Administration.

NATO: North Atlantic Treaty Organization.

New Obligational Authority (Federal Budget): see *Budget Authority*.

Non-Aerospace Products and Services: products and services other than aircraft, missiles, space vehicles, and related propulsion and parts, produced or performed by *establishments* whose principal business is the development and/or manufacture of aerospace products.

OASD: Office of the Assistant Secretary of Defense.

Obligations (Federal Budget): commitments made by Federal agencies to pay out money for products, services, or other purposes—as distinct from the actual payments. Obligations incurred may not be larger than *budget authority*.

Orders, Net New: the sales value of new orders (supported by legal documents) minus cancellations during the period.

Other Aerospace Products and Services: all conversions, modifications, site activation, other aerospace products (including drones), services, plus *research and development* under contract, defined as: basic and applied research in the sciences and in engineering and design and *development* of prototype products and processes.

Other Customers: all customers other than the U.S. government to include but not limited to: *air carriers*, private citizens and corporations, and state, local, and foreign governments.

Outlays: checks issued, interest accrued on the public debt, or other payments made, net of refunds and reimbursements.

Overtime Hours: that portion of the gross *average weekly hours* which was in excess of regular hours and for which premium payments were made.

Passenger-Mile: one passenger moved one mile.

Payroll, All Manufacturing: includes the gross *earnings* paid in the calendar year to all employees on the payroll of operating manufacturing *establishments*. Includes all forms of compensation paid directly to workers such as: salaries, wages, commissions, dismissal pay, all bonuses, vacation and sick leave pay, and compensation in kind; prior to such deductions as: employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. Does not include employers' Social Security contributions or other non-payroll labor costs such as: employees' pension plans, group insurance premiums, and workmen's compensation.

Procurement: the process whereby the executive agencies of the Federal Government acquire goods and services from enterprises other than the Federal Government.

Production Workers: includes working foremen and all non-supervisory workers (including lead-men and trainees) engaged in fabricating, processing, assembling, inspection, receiving, storage, handling, janitorial services, product development, auxiliary production for plant's own use, and record keeping and services closely associated with the above production operations.

RD&E (Department of Defense): Research, Development, Test, and Evaluation.

Related Products and Services: sales of electronics, software, and ground equipment in support of aerospace products, plus sales by aerospace manufacturing *establishments* of systems and equipment which are generally derived from the industry's aerospace technological expertise in design, materials, and processes, but which are intended for applications other than flight.

Research: see *Research and Development*.

Research and Development:

Research: systematic study directed toward fuller scientific knowledge or understanding of the subject studied. Research is classified as either basic or applied according to the objectives of the sponsoring agency. *Applied Research:* with the objective of gaining knowledge or understanding necessary for determining the means by which a recognized and specific need may be met. *Basic Research:* with the objective of gaining fuller knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific applications toward processes or products in mind.

Development: the systematic use of scientific knowledge directed toward the production of useful materials, devices, systems, or methods including design and development of prototypes and processes.

Independent Research and Development (IR&D): a term devised by the Department of Defense and used by Federal agencies to differentiate between a contractor's research and development technical effort performed under a contract, grant, or other

arrangement (R&D) and that which is self-initiated and self-funded (IR&D).

Industrial Research and Development: research and development work performed within company facilities, funded by company or Federal funds, and excluding company-financed research and development contracted to outside organizations such as: research institutions, universities and colleges, or other non-profit organizations.

Rotorcraft: an *aircraft* which, in all its usual flight attitudes, is supported in the air wholly or in part by a rotor or rotors (i.e. airfoils rotating or revolving about an axis). See *Helicopter*.

Sales: net of returns, allowances, and discounts, the dollar value of shipments, including dealer's commissions, if any, which have passed through the sales account.

Satellite: a body that revolves around a larger body, such as the Moon revolving around the Earth, or a man-made object revolving about any body such as the Sun, Earth, or Moon.

SIC (Standard Industrial Classification): a system developed by the U.S. government to define the industrial composition of the economy, facilitating comparability of statistics. See *Aerospace Industry* for explanation of SIC codes applicable to the aerospace industry.

Space Vehicle: an artificial body operating in outer space (beyond the Earth's atmosphere).

Stockholder's Equity: *assets* minus all obligations of the corporation, except those to stockholders. Annual data are average equity for the year (using four end-of-quarter figures). For details, see "Quarterly

Financial Report for Manufacturing, Mining and Trade Corporations," compiled by the *Bureau of the Census*.

STOL: short take-off and landing aircraft.

Test (Department of Defense):

an experiment designed to assess progress in attainment or accomplishment of *development* objectives (see *RDT&E*).

Thrust: the driving force exerted by an engine, particularly an aircraft or missile engine, in propelling the vehicle to which it is attached.

Ton-Mile: one ton moved one mile.

Total Obligational Authority:

the sum of *budget authority* granted or requested from the Congress in a given year, plus unused *budget authority* from prior years.

Trade Balance: see *Merchandise Trade Balance*.

Transition Quarter (Tr. Qtr.):

the three-month interval from July 1, 1976 to September 30, 1976 belonging to neither Fiscal Year 1976 nor Fiscal Year 1977. See *Fiscal Year*.

Turbine, Turbo: a mechanical device or engine that spins in reaction to a fluid flow that passes through or over it. Frequently used in "turbo-prop" or "turbojet."

UK: United Kingdom.

US: United States of America.

USA: United States Army, an agency of the U.S. Department of Defense.

USAF: United States Air Force, an agency of the U.S. Department of Defense.

USN: United States Navy, an agency of the U.S. Department of Defense.

USSR: Union of Soviet Socialist Republics. Statistics continue to exclude this region until official data from the now independent republics become available.

Utility Aircraft: an aircraft designed for general purpose flying.

V/STOL: vertical short take-off and/or landing aircraft.

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AAI Corporation	Hughes Electronics Corporation
Aerojet, A Segment of GenCorp	Delco Electronics Corporation
Alliant Techsystems Inc.	Hughes Aircraft Company
AlliedSignal Aerospace	Hughes Telecommunications and Space Company
American Pacific Corporation	DIRECTV, Inc.
Argo-Tech Corporation	Hughes Network Systems, Inc.
B.H. Aircraft Company, Inc.	ITT Defense and Electronics Inc.
The Boeing Company	Kaman Aerospace Corporation
Chrysler Technologies Corporation	Lockheed Martin Corporation
Coltec Industries Inc.	Loral Vought Systems Corporation
Chandler Evans	Lord Corporation
Delavan Gas Turbine	Lucas Aerospace Inc.
Menasco Aerosystems	McDonnell Douglas Corporation
Walbar	Northrop Grumman Corporation
Computing Devices International	Parker Hannifin Corporation
Digital Equipment Corporation	Raytheon Company
Dowty Aerospace	Rockwell International Corporation
Yakima	Rohr, Inc.
Los Angeles	Rolls Royce North America Inc.
DuPont Company	Sundstrand Corporation
FMC Corporation	Teledyne, Inc.
GEC-Marconi Electronic Systems Corporation	Teledyne Brown Engineering
General Dynamics Corporation	Teledyne Controls
General Electric Company	Teleflex Inc./TFX Aerospace Group
The BFGoodrich Company	Teleflex Aerospace/Defense
Landing Systems	Mal Tool & Engineering
Maintenance, Repair, and Overhaul	Texas Instruments Incorporated
Safety Systems	Defense Systems & Electronics Group
Sensors and Integrated Systems	Textron Inc.
Gulfstream Aerospace Corporation	Thiokol Corporation
Harris Corporation	TRW Inc.
Heath Tecna Aerospace Company	United Technologies Corporation
HEICO Corporation	Aerospace/Defense:
Hexcel Corporation	Pratt & Whitney
Honeywell Inc.	Sikorsky
	Hamilton Standard
	Vought Aircraft Company
	Westinghouse Electric Corporation
	Electronic Systems Group
	Williams International



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1250 Eye Street, NW
Washington, DC 20005

